

DEPARTMENT  
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NATIONAL  
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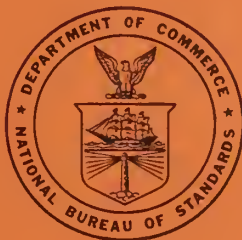








# Guide To Instrumentation Literature



United States Department of Commerce

National Bureau of Standards

Miscellaneous Publication 271

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**Central Radio Propagation Laboratory.\*** Ionospheric Telecommunications. Tropospheric Telecommunications. Space Environment Forecasting. Aeronomy.

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\* Located at Boulder, Colorado 80301.

\*\* Located at 5285 Port Royal Road, Springfield, Virginia 22171.

# Guide To Instrumentation Literature

Julian F. Smith and W. G. Brombacher



National Bureau of Standards Miscellaneous Publication 271

(Supersedes Circular 567)

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## FOREWORD

In 1945 the Instruments and Regulations Division, American Society of Mechanical Engineers (ASME), issued a pamphlet, Sources of Information on Instruments. In 1952 Julian F. Smith of the Library of Congress prepared a guide and source list, Instrumentation Literature and its Use, for the Office of Basic Instrumentation, National Bureau of Standards.

Revision of the two publications was undertaken jointly by ASME and NBS, and the result was issued in 1955 as NBS Circular 567, Guide to Instrumentation Literature. Lyman Van der Pyl, for the Bibliography Committee of the Instruments and Regulators Division, ASME, participated in the revision. The Smith report was thoroughly revised, enlarged, and updated, but its list of instrument manufacturers (readily available elsewhere) was dropped.

The present Monograph is a revision of Circular 567. The announced objective of Circular 567 was to assist all persons "interested in utilizing the extensive and scattered literature of instrumentation." With the same objective, this revision has brought its literature coverage into 1964, while dropping older references now aging into obsolescence. The revision is part of a program of instrumentation research and development in the Basic Instrumentation Section under Joshua Stern, chief of the section.

A. V. Astin, Director.

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# CONTENTS

	Page
Foreword . . . . .	ii
1. Introduction . . . . .	1
1.1 Objective . . . . .	1
1.2 Scope . . . . .	2
1.3 Kinds of Literature . . . . .	2
1.4 Time Coverage . . . . .	3
1.5 Sources Consulted . . . . .	3
1.6 Instrumentation in the Literature . . . . .	4
1.61 Abstract Journals . . . . .	4
1.62 Periodicals . . . . .	4
1.63 Technical Reports . . . . .	4
1.64 Separates . . . . .	4
1.65 Patents . . . . .	5
1.66 Dissertations . . . . .	7
1.67 Buyers' Guides . . . . .	7
1.68 Literature Guides . . . . .	7
1.7 Arrangement of Entries . . . . .	7
1.8 Abbreviations . . . . .	8
2. Classified Entries . . . . .	21
2.1 Abstracting and Indexing Journals and Services . . . . .	21
A100 General Science; Life Sciences . . . . .	21
A200 Instrumentation . . . . .	22
A300 Electricity and Electronics . . . . .	23
A400 Physics . . . . .	24
A500 Chemistry . . . . .	24
A600 Engineering . . . . .	25
A700 Process Industries . . . . .	26
2.2 Bibliographies . . . . .	28
B100 Instrumentation . . . . .	28
B200 Automation and Control . . . . .	29
B300 Telecommunications . . . . .	30
B400 General or Not Otherwise Classified (A,B,C,D) . . . . .	31
2.3 Books, Monographs, Reference Works . . . . .	33
1000 Reference Books, Handbooks, Data Compilations (A,B,C) . . . . .	33
1100 Design of Experiments; Technique . . . . .	37
1200 Instrumentation: General (A,B,C) . . . . .	38
1230 Instrumentation: Devices (A,B,C,D) . . . . .	40
1270 Instrumentation: Functions and Effects . . . . .	43
1300 Automation and Control: General (A,B,C,D) . . . . .	44
1330 Automation and Control: Devices (A,B,C,D) . . . . .	47
1370 Process Control (A,B,C,D) . . . . .	49
1400 Computers: General (A,B,C,D) . . . . .	50
1430 Computers: Analog and Digital (A,B,C,D) . . . . .	52
1500 Electronics: General . . . . .	55
1530 Electronics: Instrumental (A,B,C,D) . . . . .	57



2.3	Books, Monographs, Reference Works (Cont.)	
1550	Electronics: Semiconductors (A,B,C,D)	60
1560	Electronics: Transistors (A,B,C,D)	62
1570	Electronics: Functions and Effects	64
1600	Electricity and Magnetism: General (A,B,C,D)	65
1630	Electricity and Magnetism: Devices (A,B,C,D)	67
1670	Electricity and Magnetism: Functions and Effects	68
1700	Telecommunications: General (A,B,C,D)	70
1730	Telecommunications: Devices (A,B,C,D)	73
1770	Telecommunications: Frequencies; Effects (A,B,C,D)	75
1800	Aeronautics; aviation	77
1830	Space; Rockets; Missiles (A,B,C,D)	79
1900	Physics; Geophysics	81
2000	Meteorology and Seismology	82
2100	Optics: General (A,B,C,D)	83
2130	Optics: Spectroscopy	85
2170	Optics: Microscopy and Electron Microscopy	87
2200	Photography; Photogrammetry	88
2300	Radiation; Radioactivity; Dosimetry	89
2400	Atomic and Nuclear Energy (A,B,C,D)	92
2500	Pressure and Vacuum (A,B,C)	94
2600	Acoustics and Ultrasonics	96
2700	Chronometry; Horology	97
2800	Heat; Temperature; Cryoscopy (A,B,C,D)	98
2900	Mechanics (A,B,C,D)	100
3000	Fluid Flow (A,B,C,D)	103
3100	Vibration and Shock	106
3200	Chemistry; Analysis; Processes (A,B,C)	106
3300	Metals; Metallography	110
3400	Medical Instrumentation; Biophysics (A,B,C,D)	111
3500	Metrology and Calibration	113
3600	Testing Materials	114
3700	Standards; Specifications	116
2.4	Dissertation Guides	116
2.5	Directories, Buyers' Guides, Exhibit Guides (A,B,C)	117
2.6	Guides to Technical Literature and Information Services	119
G100	General	119
G200	Defined Subject Areas	120
G300	Defined Sources	121
2.7	Indexes of Technical Literature	121
I100	General	121
I200	Defined Subject Areas	122
I300	Defined Sources	123



2.8	Patents. . . . .	123
Pa100	Official Gazettes and Abridgments . . . . .	124
Pa200	Official Searching Aids . . . . .	125
Pa300	Unofficial Searching Aids . . . . .	126
Pa400	Translations. . . . .	127
2.9	Periodicals and Serials. . . . .	128
P100	Instrumentation: General (A,B,C,D). . . . .	128
P130	Instrumentation: Special Topics . . . . .	130
P170	Instrumentation: Company Journals . . . . .	130
P200	Computers. . . . .	131
P250	Automation and Process Control (A,B,C,D) . . . . .	132
P300	Aerospace Sciences (A,B,C,D) . . . . .	134
P400	Mathematics and its Applications . . . . .	136
P450	Mechanics (A,B,C,D). . . . .	136
P500	Electricity: General. . . . .	138
P530	Electricity: Society Journals . . . . .	139
P570	Electricity: Company Journals . . . . .	141
P600	Electronics: General (A,B,C,D). . . . .	141
P700	Telecommunications: General . . . . .	143
P730	Telecommunications: Radio . . . . .	145
P750	Telecommunications: Electronic Aspects. . . . .	146
P770	Telecommunications: Devices; Frequencies. . . . .	146
P800	Heat; Temperature; Cryoscopy . . . . .	147
P830	Light; Optics; Photography (A,B,C,D) . . . . .	148
P870	Acoustics; Ultrasonics . . . . .	150
P900	Atomic and Nuclear Energy (A,B,C,D). . . . .	151
P1000	Geophysics: General (A,B,C,D) . . . . .	153
P1050	Geophysics: Special Topics . . . . .	155
P1100	Physics: General (A,B,C,D). . . . .	156
P1150	Physics: Applied (A,B,C,D). . . . .	158
P1200	Engineering (A,B,C,D). . . . .	159
P1300	Chemistry: Analysis (General) . . . . .	162
P1330	Chemistry: Analysis (Special Methods) . . . . .	162
P1370	Chemistry: Industrial . . . . .	163
P1400	Testing Materials. . . . .	164
P1500	Metrology and Calibration. . . . .	165
P1600	General Science. . . . .	167
2.10	Supplement (late entries). . . . .	168



Julian F. Smith<sup>1</sup> and W. G. Brombacher<sup>2</sup>

Der Theoretiker alles weiss und nights kann.  
Der Praktiker nichts weiss und alles kann.  
German engineers' proverb.

Practice is blind without theory.  
Theory is lame without practice.  
Instrumentation version.

## 1. INTRODUCTION

NOTE: Abbreviations, chiefly for names of sponsoring or issuing organizations, are interpreted in 1.8.

This compilation is a source list of instrumentation literature, with a subject index and an index of personal and Corporate authors. Because instrumentation outcrops occur all through scientific and technical literature, two effects are noticeable:

- a. Many entries, selected for useful ore content, do not look like pay dirt. Merit ratings might need defending, so none are offered.
- b. Innumerable titles covering some ore content had to be omitted; overloading would add more hindrance than help.

In the conglomerate stratum between obviously rich and patently lean ores, doubtless some nuggets were missed and some fool's gold passed for real. As to thoroughness in the list, the survey of sources consulted (1.5) permits a rough assay.

### 1.1 OBJECTIVE.

Two concepts underlie this Guide:

- a. Instruments serve to extend or refine human faculties of sensing and control beyond their unaided range of observation, measurement or computation.
- b. Instrumentation comprises the art and science of designing, making, applying and operating instruments.

- 
- 1. Now at Lenoir Rhyne College, Hickory, North Carolina.
  - 2. Consultant, NBS.

## 1.1 (Cont.)

The broad objective is to meet general and specific needs for aid in locating information on instrumentation; hence the emphasis on guides (2.4, 2.5, 2.6, 2.7).

## 1.2 SCOPE.

This Guide is a bibliography of literature which contains, or will aid in finding, instrument information. The aim is to list the principal sources which are directly pertinent, and selected related sources (e.g. in electronics, computers, metrology, etc.).

Literature coverage for patents and for medical instrumentation, intentionally scanty in Circular 567, is expanded here to allow for increasing quantity and pertinence of these areas. Patent literature is discussed in the introduction, as to character, extent and instrumentation significance. This is to encourage use of patents as primary sources of technical information, and inclusion of patent references in bibliographies.

Foreign languages receive less attention than English, since their publications are less readily accessible, and American linguistic skill is in short supply. No language is barred solely for unfamiliarity; foreign sources receive attention here about in proportion to their coverage in the sources consulted (1.5). This accounts for the prominence of Russian.

Major sources of translations are noted, e. g. by listing both titles of translated periodicals (mostly Russian) and books. Foreign language titles are transliterated when necessary, but are not translated (explanatory notes are sometimes added). Japanese and Chinese sources are increasingly prolific in instrumentation through the past decade.

## 1.3 KINDS OF LITERATURE.

Varieties of instrumentation literature, and some selection criteria for entry here, are:

- a. Books, manuals, reference works, data compilations (generally omitting undergraduate textbooks).
- b. Publications offering abstracts or indexes, when coverage includes instrumentation.
- c. Periodicals, including a few house organs having substantial technical content.

### 1.3 (Cont.)

d. Bibliographies and indexes, including some which list technical reports.

e. Buyers' guides, exhibit guides, directories of manufacturers.

f. Guides to dissertations, patents, standards, etc., and to branches of science literature (chemistry, physics, engineering, etc.).

These types of literature are excluded:

a. Separates (patents, dissertations, governmental and institutional bulletins, technical reports, etc.). Some guides, abstracts and indexes covering separates are listed.

b. Trade literature (catalogs, fliers, instruction manuals and non-technical house organs).

c. Trivia and ephemera.

### 1.4 TIME COVERAGE.

Books subject to obsolescence are listed only from about 1950; most entries are less than 10 years old. Some are still in preparation (1964). Some lastingly useful publications are entered regardless of age. Beginning dates of serials (even into previous centuries), and time coverage of bibliographies, are noted when known.

### 1.5 SOURCES CONSULTED.

Reference sources of these types were used:

a. Card catalogs and appropriate shelves in LC, NBS Library, USPOL and NLM.

b. Book reviews and publishers' announcements (taken as found, not systematically searched).

c. Pertinent subject sections in catalogs (1962-64) of domestic and foreign publishers of technical books.

d. Accession lists, NBS Library.

e. Selected sources from those listed in 2.6 and 2.7.



## 1.6 INSTRUMENTATION IN THE LITERATURE

Each type of instrumentation literature has its own characteristics to guide inquirers. Examples:

### 1.61 ABSTRACT JOURNALS

a. Biological Abstracts: Microscopy; medical instrumentation; devices for animal tests; marine biology.

b. Chemical Abstracts and Chemisches Zentralblatt: Apparatus; process automation and control; photography; instruments for radiation and subatomic phenomena; instrumental analysis.

c. Physics Abstracts and Electrical Engineering Abstracts (rich in instrumentation): laboratory instruments; electrical and electronic devices.

d. Engineering Index (subject-classified): numerous subclasses for instrumentation.

e. Nuclear Science Abstracts: instruments for atomic and subatomic phenomena.

1.62 PERIODICALS. There is no fixed census of scientific and technical periodicals; rates of birth and death are too high. The latest World List of Scientific Periodicals has about 60,000 titles; instrumentation topics may appear in any or all of them. Selections for entry were based on pertinent content (not necessarily in predominance) useful to instrumentation searchers. Discontinued titles are omitted unless they have lasting utility. Collective indexes, covering periods of 5 to 50 years, are noted in periodical entries. Serials (often annual or biennial) are entered as periodicals.

1.63 TECHNICAL REPORTS, too numerous to enter here, are omitted, with only a few exceptions made for special reasons. The bibliographic aids supplied by DDC, OTS, AEC and NASA are in general sufficient for finding reports. Outside of security-classified areas, these aids are publicly available (2.1). They have little foreign coverage; various European agencies serve as guides to foreign reports, e.g. DSIR (Great Britain), CNRS (France), TNO and NIDR (Netherlands). None will publicly disclose reports which are under security wraps.

1.64 SEPARATES. Legions of separates, often in numbered or coded series, are issued by international, national or regional governments and private organizations. Technical societies, trade associations, academic or scientific institutions, and standardizing bodies (ASA, ASTM, ISO, BSI, DNA, etc.) all contribute. Many separates are important monographs. Only a few outstanding titles have been entered; searchers should consult guides and indexes (2.2, 2.4, 2.6, 2.7), or publication lists of issuing organizations.

## 1.65 PATENTS.

1.651 Extent of Patent Literature. Great Britain (1617-), the U. S. (1789-), France (1791-) and Germany (1877-) all are in the million-patents class:

a. Great Britain, average about 60 per year, 1617-1852; about a million in series renumbered annually, 1853-1915; over 800,000, 1916-64.

b. U. S. (present numbering from 1937), passed number 3,100,000 in August, 1963.

c. France and Germany, numbering passed a million in the 1950's.

There are now two German patent offices (DPA, Munich, and DDR, East Berlin). The DDR (around 40,000 patents up to 1964) distinguishes between Ausschliessungspatente and Wirtschaftspatente, probably imitating the Soviet distinction between "patents" and "certificates" of invention. Several European nations open pending applications to public opposition (DPA calls them Auslegeschriften). Even their rejected applications are sources of technical information.

Of more than a hundred patent offices, most do not issue printed copies (Canada not till 1948, Belgium not till 1950). Hardly more than a score issue patents meriting an instrumentation search. Holland (1912-) copyrights its printed applications and patents. The Swiss Patentamt is trilingual (German, French, Italian); Canadian patents are usually in English, but sometimes in French. The Soviet patent office (1924-) is far more active than was the Czarist patent office (1813-1917).

Among patent gazettes of small nations which merit careful attention for instrumentation are those of Holland, Belgium, Switzerland and Scandinavian nations. Concentration in these nations on utilizing their engineering talent leads to relatively high instrumentation activity. Thus, printed Swedish patents in their Class 42 (precision instruments), 1885-1964, fill about 50 bound volumes (POSL).

1.652 Searching. Instrument patents are best searched through official subject classifications. Being mainly functional, the U. S. classification enters instruments by purpose served, not by structure. The looseleaf manual, under constant revision, indexes thoroughly its more than 400 classes and its thousands of subclasses.

Instrumentation, being as heterogeneous as the useful arts, is inevitably scattered in all patent classifications. Poor indexing intensifies a searcher's difficulties; he must contribute his due share of patience, skill and care.

The base for the present U. S. classification was adopted in the 1870's. Then new, DPA (1877-) picked up the discarded base, followed in later years by several other European nations (the Soviet Union most recently). Greatly elaborated, classifications on the old base are now much used in Europe.

The British, French and Swiss classifications are individualistic; Canada follows the U. S. rather than the British scheme. Revision is less active in these nations than in the USPO. Britain, Germany and Switzerland index their classifications well, France less thoroughly. Though POSL has a manuscript translation of the French classification, searching French patents by classes is tedious. Their instruments class is poorly defined and includes musical instruments.

Published claims or abridgments of patents are usually not well indexed; as exceptions, BPO and DPA provide excellent subject indexes of abridgments. The U. S. and Canada issue only indexes based on titles, offering searchers little aid and no comfort. Search room practice (POSL) helps by filing cross references when a patent pertains to more than one class. For small patent offices which issue no indexes, output is small and classwise searches are usually brief.

The International Patent Classification, Convention of December 19, 1954, is not a searching aid, but an avowed first step toward European patents under one European patent law. In its first decade its adherents are Common Market and Outer Seven nations. None has yet discarded its own classification to adopt the International system, but member nations print the International class number, along with the class number in their own system, on copies of patents. The full text of the International Patent Classification, in English, French and German) can be had as a separate. Gazettes of member patent offices(e. g. Bulletin officiel) print the full text at intervals.

1.653. Gazettes are weekly in large patent offices. Some carry printed claims or abridgments; others are confined to official notices, leaving the abridgments to a separate publication. France published no abridgments till 1958; its Abreges descriptifs (2.8) was a supplement to Bulletin officiel, 1958-59, but was separated in 1960. The British Abridgments were separated years ago from the Official Journal (2.8).

1.654. Unofficial aids (periodicals, card services, machine-coded records) come mainly from private enterprise. The sputnik-sparked interest in translating Russian extends even to rival translations from the Soviet Byulletin Izobretenii (2.8). Some first-claim translations from patents of Scandinavian countries, DDR, Poland and USSR are in the POSL files.

Leading sources of published patent abstracts include Chemical Abstracts and Chemisches Zentralblatt (excellent coverage in chemical instrumentation); Solid State Abstracts (semiconductors); and Nuclear Science Abstracts (nuclear physics). Lacking any comprehensive source for abstracts of instrument patent searchers must rely on scattered sources.

1.655 Mechanized searching in the USPO now covers all steroid patents, coded so that examiners now search only by machine. Coding is in progress (1964) for electronics and some areas of inorganic chemistry. The ultimate but distant goal is to code the entire subject classification, passing gradually from manual searching to total mechanization.



1.656 Patentability. Allowance by examiners, and grants by the Patent Office, do not guarantee validity of patents. A court may declare a litigated patent invalid for any of various reasons, such as prior art unknown to the examiner. Laws or principles of nature, and discoveries in pure theory, are not patentable. True, a half century ago one Scofield succeeded in patenting two pet theological doctrines under the guise of educational toys; but the rule remains. To be patentable an invention must be novel (not published up to a year before the application was filed), not contrary to public morals, and useful.

1.66 DISSERTATIONS. Academic concentration on pure theory in doctoral dissertations is archaic; theory moved over long ago to give practice a seat. Interest in and attention to instruments increased. Many theses reach the periodical press only in part, many not at all; abstract journals commonly ignore them. Hence published subject indexes can give them only scanty coverage. Like patents and other separates, dissertations often contain significant new information about instrumentation. They are traced best through the aids listed in 2.4.

1.67 BUYERS' GUIDES. Industries served by trade journals which depend much on advertising income are well supplied with buyers' guides, exposition guides, etc. Conspicuous among them, for instrument interests, are chemical processing, electronics, electricity, machinery, and instruments themselves. Only major examples are cited in 2.5.

1.68 LITERATURE GUIDES. Chemistry has had its literature guides since before World War I; physics, mathematics and engineering followed suit between the world wars. Nontechnical subject areas had much older guides, and new ones still appear. In fast-moving arts and sciences the guides are plagued by early obsolescence, a syndrome to which this one has no immunity. General instructions in literature searching (see references cited in 2.6) are good also for instrumentation searches. Only major aids are cited.

## 1.7 ARRANGEMENT OF ENTRIES.

Sources of instruments information are entered by types, subdivided by subjects in small searchable groups (mostly not over about 30 entries). Some voluminous subjects are broken down geographically: A = United States, B = other English-language sources, C = Western Europe, D = all other origins.

Sequence within subdivisions is random, so that late entries change only spacing, not arrangement. The classification code appears in the Table of Contents. Entries too late to classify are in 2.10.

## 1.8 ABBREVIATIONS.

Names of publishers and of sponsoring organizations (largely scientific or technical societies and government agencies) are abbreviated in this Guide, and in the index entries for corporate authors. The abbreviations, in alphabetical order, are interpreted here. Location is usually indicated, but is commonly uncertain and often omitted for international unions of societies. Berlin means West Berlin; East Berlin or Berlin (DDR) means Communist-controlled Berlin.

- AAAS: American Association for the Advancement of Science, Washington  
AAS: American Astronautical Society, Baltimore  
ABS: American Bibliographic Service, Darien, Connecticut  
ACeS: American Ceramic Society, Columbus  
ACGIH: American Conference of Governmental Industrial Hygienists, Cincinnati  
Achema: See Dechema  
ACM: Association for Computing Machinery, New York  
ACS: American Chemical Society, Washington  
AcSA: Acoustical Society of America, New York  
Addi-  
son: Addison-Wesley Publishing Co., Inc., Reading, Mass.  
AEC: Atomic Energy Commission, Washington  
AED: Zentralstelle Atomkernenergie-Dokumentation (Gmelin Institut), Frankfurt a/m  
AEG: Allgemeine Elektrizitäts-Gesellschaft, Berlin  
AEI: Associazione elettrotecnica italiana, Milan  
AEI  
Ltd: Associated Electrical Industries (Manchester) Ltd.  
AERE: Atomic Energy Research Establishment, Harwell, England  
AES: Audio Engineering Society, New York  
AES  
Japan: Atomic Energy Society of Japan, Tokyo  
AF: U. S. Air Force  
AFN: Association Francaise de Normalisation, Paris  
AFOSR: Air Force Office of Scientific Research, Washington  
AGARD: Advisory Group for Aeronautical Research and Development, Washington  
AGET: Advisory Group on Electron Tubes, DOD, Washington  
AGI: American Geological Institute, Washington  
AGU: American Geophysical Union, Washington  
AI: American Instrument Co., Silver Spring, Maryland  
AIAA: American Institute of Aeronautics and Astronautics, New York (merger of Institute of Aerospace Sciences and American Rocket Society)  
AIChE: American Institute of Chemical Engineers, Philadelphia  
AID: Aerospace Technology Division, Library of Congress, Washington  
AIEE: American Institute of Electrical Engineers, New York (merged, 1962, with IRE as IEEE).

AIMME: American Institute of Mining and Metallurgical Engineers, Dallas. (see also AIMMPE).  
 AIMMPE: American Institute of Mining, Metallurgical and Petroleum Engineers, Philadelphia. (Petroleum was added to the name AIMME in 1956).  
 AIP: American Institute of Physics, New York  
 Air  
 Univ: Air University Library, Maxwell Air Force Base, Alabama  
 Akade-  
 mie: Deutsche Akademie der Wissenschaften (Berlin) and its Akademie-Verlag  
 Akademi-  
 che: Akademische Verlagsgesellschaft Geest und Portig, Leipzig, (DDR).  
 AIA: American Library Association, Chicago  
 Allyn: Allyn & Bacon, Inc., Englewood Cliffs, N. J.  
 AMA: American Medical Association, Chicago  
 American Avia-  
 tion: American Aviation Publications, Inc., Washington  
 AMaS: American Mathematical Society, Providence  
 AMeS: American Meteorological Society, Washington  
 AMiS: American Microscopical Society, Ann Arbor  
 AN: Akademiya Nauk SSSR, Moscow (Academy of Sciences, USSR).  
 ANIDEL: Associazione Nazionale Imprese Produttrici e Distributrici di Energia Elettrica, Rome  
 ANL: Accademia Nazionale dei Lincei, Rome  
 APL: Applied Physics Laboratory, Silver Spring, Md.  
 Arnold: Edward Arnold & Co., Ltd., London W.1.  
 ARS: American Rocket Society, New York (also see AIAA)  
 ASA: American Standards Association, New York  
 ASE: Association Suisse des Electriciens, Zurich  
 ASEA: Allmänna Svenska Elektriska Aktiebolaget, Västerås  
 ASHAE: American Society of Heating and Airconditioning Engineers, New York  
 ASM: American Society for Metals, Novelty, Ohio  
 ASME: American Society of Mechanical Engineers, New York  
 ASP: American Society of Photogrammetry, Washington  
 ASQC: American Society for Quality Control, Milwaukee  
 ASRE: American Society of Refrigerating Engineers, New York  
 ASTIA: Armed Services Technical Information Agency, Arlington. (name changed 1963, to Defense Documentation Center for Science and Technology, DDC).  
 ASTM: American Society for Testing and Materials, Philadelphia (and added to the name, 1961).  
 AUDD: Association pour l'Utilisation et le Diffusion de la Documentation, Lyons  
 AVS: American Vacuum Society, New York  
 Barth: Johann Ambrosius Barth Verlag, Leipzig  
 BCIRA: British Cast Iron Research Association, Birmingham



BCS: British Computer Society, London  
 BCeS: British Ceramic Society, London  
 BEAMA: British Electrical and Allied Manufacturers' Association,  
 London  
 Beck-  
 man: Beckman Instruments, Inc., Richmond, California  
 Bell: G. G. Bell and Sons, Ltd., London  
 Bell  
 Labs: Bell Telephone Laboratories, New York  
 Benja-  
 min: W. A. Benjamin, Inc., New York  
 Benn: Ernest Benn, Ltd., London  
 Beuth: Beuth-Vertrieb G.m.b.H., Cologne  
 BGPC: Bunsengesellschaft für physikalische chemie, East Berlin  
 BHI: British Horological Institute, London  
 BHRA: British Hydromechanics Research Association, Harlow  
 BIRE: British Institution of Radio Engineers, London  
 BIS: British Interplanetary Society, London  
 Black-  
 well: Blackwell Scientific Publications, Oxford, England  
 BLS: U. S. Bureau of Labor Statistics, Washington  
 BMI: Battelle Memorial Institute, Columbus  
 BNES: British Nuclear Energy Society, London  
 Bowker: R. R. Bowker Co., New York  
 Bowman: Bowman and Littlefield, Inc., New York  
 BPI: Brooklyn Polytechnic Institute  
 BPO: British Patent Office, London  
 BRL: Ballistic Research Laboratories, Aberdeen Proving Ground  
 BSI: British Standards Institution, London  
 BSIRA: British Scientific Instruments Research Assn., London  
 BSR: British Society of Rheology, Pontypool  
 BuAer: U. S. Navy Bureau of Aeronautics, Washington  
 (merged into Bureau of Naval Weapons)  
 BuOrd: U. S. Navy Bureau of Ordnance, Washington  
 (merged into the Bureau of Naval Weapons)  
 BuShips: U. S. Navy Bureau of Ships, Washington  
 BuWeaps: U. S. Bureau of Naval Weapons, Washington  
 (merger of BuOrd and BuAer).  
 Butter-  
 worth: Butterworth Publications, Ltd., London and Washington  
 Califor-  
 nia: University of California Press, Berkeley  
 Cam-  
 bridge: Cambridge University Press, Cambridge, England  
 CAV: Ceskoslovenska Akademie Ved (Czechoslovak Academy of  
 Science) Prague  
 CGS: U. S. Coast and Geodetic Survey, Washington  
 Chap-  
 man: Chapman and Hall, Ltd., London  
 Chemi-  
 cal: Chemical Rubber Publishing Co., Cleveland

Chi-  
   cago: University of Chicago Press  
 Chilton: Chilton Co. Book Division, Philadelphia  
 CIIPN: Centro de Investigacion del Instituto Politecnico Nacional, Mexico City  
 CIRP: College International Recherche Production (International Institution for Production Engineering Research)  
 CISE: Centro Informazione Studi Esperienze, Milan  
 Clarendon: Clarendon Press, New York (for Oxford University Press)  
 Cleaver-  
   Hume: Cleaver-Hume Index Offices, London  
 CLS: Central Library of Spectroscopy, Ellicott City, Md.  
 CMA: Canadian Manufacturers' Association, Toronto  
 CNET: Centre Nationale d'Etudes des Telecommunications, Issy-les-Molineaux  
 CNRS: Centre Nationale de Recherche Scientifique, Paris  
 Columbia: Columbia University (including Columbia University Press) New York  
 Con-  
   stable: Constable & Co., Ltd., London  
 Consultants: Consultants Bureau, New York (see also Plenum)  
 COSPAR: Committee on Space Research (ICSU), Paris  
 Crosby: Crosby Lockwood and Son, Ltd., London  
 CSIRO: Commonwealth Scientific and Industrial Research Organization, East Melbourne, Australia  
  
 DATA: Derivation and Tabulation Associates, Inc., Orange, N.J.  
 DAW: Deutsche Akademie der Wissenschaften (West Germany)  
 DBP: Deutsche Bundespost  
 DDC: Defense Documentation Center for Science and Technology, Arlington  
 DDR: Deutsche Demokratische Republik (East Germany), including its Patent Office in East Berlin.  
 Dechema: Deutsche Gesellschaft für chemisches Apparatewesen, Frankfurt a/M. (Publisher of Achema Jahrbuch).  
 de Gruyter: W. de Gruyter Verlag, Berlin  
 Derwent: Derwent Information Service, London  
 DIN: Deutsche Industrienormen, issued by Deutsche Normenausschuss (DNA), Berlin. (German Industrial Standards)  
 DMA: Deutsche Messe- und Ausstellungs Aktiengesellschaft, Hannover  
 DMPA: Deutsche Materialprüfungsanstalten, Berlin  
 DNA: Deutsche Normenausschuss, Berlin. See Also DIN.  
 DO: Dominion Observatory, Ottawa  
 DOD: Department of Defense, Washington  
 DOFL: Diamond Ordnance Fuze Laboratories, Washington (Army Materiel Command). (Name changed 1963, to Harry Diamond Laboratories).

Dover: Dover Publications, Inc., New York  
 DPA: Deutsches Patentamt, Munich  
 DPG: Deutsche physikalische Gesellschaft, Berlin  
 DRG: Deutsche rheologische Gesellschaft, Berlin  
 DSIR: Department of Scientific and Industrial Research, London  
 DT: Dokumentation der Technik, Munich  
 DuMont: Allen B. DuMont Laboratories, Inc., Clifton, N. J.  
 Dunod: Dunod Editeur, Paris  
 DVL: Deutsche Versuchsanstalt für Luftfahrt, Braunschweig  
 DVM: Deutscher Verband für Materialprüfung, Berlin  
 EEG: Electroencephalograph(y)  
 EIA: Electronic Industries Association, New York  
 EL: Electrotechnical Laboratory, Agency of Industrial  
       Science and Technology, Tokyo  
 Else-  
   vier: Elsevier Publishing Co., New York and Amsterdam  
 Engel-  
   hard: Instruments and Systems Section, Engelhard Industries,  
           Inc., Newark, N.J.  
 EOQC: European Organization for Quality Control, Rotterdam  
 ES: Electrochemical Society, New York  
 ES  
 (Japan) Electrochemical Society of Japan, Tokyo  
 ESL: Engineering Societies Library, New York  
 Ey-  
   rolles: Editions Eyrolles, Paris  
  
 Felten: Felten und Guilleaume Carlswerk Aktiengesellschaft,  
           Cologne  
 FID: Federation Internationale de Documentation, The Hague  
 Fromme: Verlag Georg Fromme & Co., Vienna  
  
 GAFC: General Aniline and Film Corp., Binghampton, N. Y.  
 GAMS: Groupement pour l'Avancement des Methodes Spectrographi-  
       ques, Paris  
 Gau-  
   thier: Gauthier-Villars, Editeur, Paris  
 GDC: Gesellschaft deutscher Chemiker, Frankfurt  
 GE: General Electric Co., Schenectady  
 GEC: General Electric Co., Ltd., London  
 Girar-  
   det: W. Girardet Verlag, Essen  
 Gmelin: Gmelin-Institut für anorganische Chemie und Grenzgebiete,  
           Max Planck Gesellschaft zur Förderung der Wissenschaf-  
           ten, Frankfurt a/M  
 Gordon: Gordon and Breach, Science Publishers, New York  
 GPO: Government Printing Office, Washington  
 Griffin: Chas. Griffin & Co., Ltd., London  
 Gulf: Gulf Publishing Co., Houston  
 Hafner: Hafner Publishing Co., New York

Hansea-  
   tische: Hanseatische Verlagsanstalt, Hamburg  
 Harper: Harper and Row, Publishers, New York  
 Harvard: Harvard University Press, Cambridge  
 Hayden: Hayden Book Co., New York  
 HDL: Harry Diamond Laboratories, Army Material Command,  
       Washington (Until 1963 the name was Diamond Ord-  
       nance Fuze Laboratories, DOFL).  
  
 Heine-  
   mann: Wm. Heinemann, Ltd., London  
 HEW: Health, Education and Welfare Dept., Washington  
 Heymann: Carl Heymanns Verlag K.-G., Munich  
 Heywood: Heywood & Co., Ltd., London  
 Hilger: Hilger and Watts, and Adam Hilger, Ltd., London  
 Hirzel: S. Hirzel Verlag, Zurich and Stuttgart  
 Hoepli: Edizione Hoepli, Milan  
 Holt: Holt, Rinehart & Winston, Inc., New York  
 Horizon: Horizon House-Microwave, Inc., Brookline, Mass.  
 Hutchin-  
   son: Hutchinson & Co. (Publishers) Ltd., London W.1  
  
 IAEA: International Atomic Energy Agency  
 IAF: International Astronautical Federation, Vienna  
 IAS: Institute of the Aerospace Sciences, New York  
       (see also AIAA)  
 IBM: International Business Machines Corp., New York  
 ICC: International Computation Center, Rome  
 ICF: Institut de Ceramique Francaise, Paris  
 ICI: International Commission (formerly **Congress of**)  
       Illumination  
 ICPUAE: International Congress on Peaceful Uses of Atomic  
       Energy  
 ICSU: International Council of Scientific Unions  
 ICVT: International Congress on Vacuum Techniques  
 IE: Institution of Engineers (Australia) Sydney  
 IECE: Institute of Electrical Communication Engineers of  
       Japan, Tokyo  
 IEE: Institution of Electrical Engineers, London  
 IEEE: Institute of Electrical and Electronics Engineers,  
       New York. (merger, 1962, of AIEE and IRE)  
 IEE  
   Japan: Institute of Electrical Engineers of Japan, Tokyo  
 IES: Illuminating Engineering Society, London  
 IF: Institute of Fuel, London  
 IFAC: International Federation of Automatic Control, Brussels  
 IFIP: International Federation for Information Processing  
 IGT: Institute of Gas Technology, Chicago  
 II: Information for Industry, Washington  
 IS: Indian Institute of Science, Bangalore  
 Illinois: University of Illinois Press, Urbana



IM: Institute of Metals, London  
 IME: Institution of Mechanical Engineers, London  
 IMEKO: Internationale Konferenz für Messtechnik und Gerätebau  
 Indiana: Indiana University Press, Bloomington  
 Indus-  
   trial: Industrial Press, New York  
 INSBK: Institute of Nuclear Sciences Boris Kidrich, Belgrade  
 Instru-  
   ments: Instruments Publishing Co., Pittsburgh  
 Inter-  
   kama: Internationaler Kongress mit Ausstellung für Messtechnik  
          und Automatik, Düsseldorf  
 Inter-  
   pas: International Patent Service Naamlooze Vennootschap,  
          Den Bosch, Netherlands  
 Inter-  
   science: Interscience Publishers, New York (Div. of John Wiley  
          and Sons)  
 IP: Institute of Physics, London  
 IPC: International Patent Classification  
 IPI: International Physical Index, Inc., New York  
 IRAM: Instituto Argentino de Racionalizacion de Materiales,  
       Buenos Aires  
 IRE: Institute of Radio Engineers, New York  
      (merged 1962, with AIEE as IEEE)  
 IRI: Industrial Research Institute, Osaka, Japan  
 IRE: Industrial Research Service, Dover, New Hampshire  
 ISA: Instrument Society of America, Pittsburgh  
 ISci: Institute for Scientific Information, Philadelphia  
 ISI: Indian Standards Institution, Delhi  
 ISO: International Standards Organization  
 ISTI: Institute for Scientific and Technical Information of  
       China, Peking  
 ITC: International Training Center for Aerial Survey, Delft  
 ITT: Institute of Textile Technology, Charlottesville, Va.  
 I Tel  
   Tel: International Telephone & Telegraph Corp., New York  
 ITU: International Telecommunication Union, Geneva  
 IUC: International Union of Crystallography  
 IUPAC: International Union of Pure & Applied Chemistry, Paris  
 IVA: Ingeniörs Vetenskapsakademien, Stockholm  
 IWB  
   RATEM: Institut für wissenschaftliche Berichterstattung RATEM,  
          Vienna. RATEM = Radio, Iontechnik, Elektromedizin  
 IWMA: Institute of Weights and Measures Administration,  
       Manchester  
  
 JCL: John Crerar Library, Chicago  
 JPL: Jet Propulsion Laboratory, Pasadena  
 JPRS: Joint Publications Research Service, Washington



JSASS: Japan Society for Aeronautical and Space Sciences, Tokyo  
 JSME: Japan Society of Mechanical Engineers, Tokyo  
 JSTM: Japan Society for Testing Materials, Tokyo  
  
 Knapp: Knapp Verlag, Düsseldorf  
 Kodak: (Eastman) Kodak Research Laboratories, Rochester  
 Krupp: Friedrich Krupp Aktiengesellschaft, Essen  
 Kyushu: Kyushu University, Fukuoka  
  
 LA: Library Association, London  
 LC: Library of Congress, Washington  
 Leemann: Gebrüder Leemann and Co., Zurich  
 LKB: LKB-Produkter Aktiebolaget, Stockholm  
 Long-  
   mans: Longmans, Green & Co., Ltd., London and New York  
  
 Macdon-  
   ald: Macdonald & Co. (Publishers) Ltd., London  
 MBLE: Societe anonyme MBLE Manufacture Belge de Lampes et de  
       Materiel Electronique, Brussels  
 Macmil-  
   lan: Macmillan Co., New York and London  
 Marconi: Marconi Wireless Telegraph Co., Ltd., Chelmsford  
 Mary-  
   land: University of Maryland, College Park  
 MB: Munitions Board, Washington  
 McGraw-  
   Hill: McGraw-Hill Book Co., New York  
 Merrill: Chas. E. Merrill Books, Inc., Columbus  
 Meth-  
   uen: Methuen & Co., Ltd., London  
 M-H: Minneapolis-Honeywell Regulator Co., Minneapolis  
 Micro-  
   films: University Microfilms, Ann Arbor  
 MIRA: Motor Industry Research Association Lindley (England)  
 MIT: Massachusetts Institute of Technology, Cambridge (includ-  
       ing MIT Press)  
 Moraine: Editions la Moraine, Geneva  
 Mouton: Mouton & Co., The Hague  
 MPI: Max Planck Institut für Stromungsforschung, Göttingen  
 MRI: Microwave Research Institute, Brooklyn  
  
 NACA: National Advisory Committee for Aeronautics (now NASA)  
       Washington  
 NACE: National Association of Corrosion Engineers, Houston  
 NAS-NRC: National Academy of Sciences and National Research  
       Council, Washington  
 NASA: National Aerospace Sciences Administration, Washington  
       see also NACA  
 Nauk: Akademiya Nauk SSSR (Academy of Sciences USSR), Moscow

Navord: Navy Bureau of Ordnance, Washington (merged into  
Bureau of Naval Weapons)

NCO: Nederlandse Centrale Organisatie, Delft (see also TNO)

NEF: Norsk Elektroteknisk Forening, Oslo

NFS: Norsk Fysisk Selskap, Trondheim

NFSAIS: National Federation of Science Abstracting and Indexing  
Services, Washington

NIDA: Norwegian Industries Development Association, Oslo

NIDR: Nederlandsch Instituut voor Documentatie en Registra-  
tuur, The Hague

NIH: National Institutes of Health, Bethesda

NLL: National Lending Library for Science and Technology,  
Boston Spa, England

NLM: National Library of Medicine, Bethesda

NNES: National Nuclear Energy Series

Northwest-  
ern: Northwestern University Press, Evanston

NPL: National Physical Laboratory, London

NRC: see NAS-NRC

NRLM: National Research Laboratory of Metrology, Tokyo

NSF: National Science Foundation, Washington

NYSEM: New York Society of Electron Microscopists

OAR: Office of Aerospace Research, Washington

OECD: Organization for Economic Cooperation and Develop-  
ment, Paris

Ohio: Ohio State University, Columbus

Olden-  
bourg: R. Oldenbourg Verlag, Munich

ONERA: Office National d'Etudes et de Recherches Aérospa-  
tiales, Paris

ONR: Office of Naval Research, Washington

Oost-  
hoek: Naamlooze Vernootschap A. Oosthoek Uitgevers Maat-  
schappij, Utrecht

OSA: Optical Society of America, New York

OTS: Office of Technical Services, Department of Commerce,  
Washington

Oxford: Oxford University Press and Clarendon Press, New York

PAL: Pacific Aerospace Library, IAS, Los Angeles

PDC: Prevention of Deterioration Center, NRC, Washington

Penn: University of Pennsylvania, Philadelphia

Penton: Penton Publishing Co., Cleveland

Perga-  
mon: Pergamon Press, New York

Philips: Philips Gloeilampenfabrieken, Eindhoven

Pitman: Sir Isaac Pitman and Sons, Ltd., London, and Pitman  
Publishing Corp., New York

PL: Philosophical Library, New York  
 Plenum: Plenum Press, Inc., New York (subsidiary of  
           Consultants' Bureau)  
 POSL: Patent Office Scientific Library, Washington  
 Prentice-  
   Hall: Prentice-Hall, Inc., Englewood Cliffs, New Jersey  
 Preston: Preston Technical Abstracts Co., Evanston, Illinois  
 Prince-  
   ton: Princeton University Press, Princeton  
 PS: Physical Society, London  
 PSAC: President's Science Advisory Committee, Washington  
 PS  
 (Japan): Physical Society of Japan  
 PTBA: Physikalisch-technische Bundesanstalt (formerly  
       Reichsanstalt), Braunschweig  
 PTT: Schweizerische Post-, Telephon- und Telegraphen-  
       Betrieben, Bern  
 Purdue: Purdue University, Lafayette, Indiana  
  
 RAeS: Royal Aeronautical Society, London  
 Rand: Rand Corporation, Santa Monica, Calif.  
 Random: Random House, Inc., New York  
 RAS: Royal Astronomical Society, London  
 RATEM: see IWB RATEM  
 RCA: Radio Corporation of America, Harrison, N. J.  
 Rein-  
   hold: Reinhold Publishing Corp., New York  
  
 RIAM: Research Institute for Applied Mechanics (Japan)  
       Kyushu University  
 Rider: John F. Rider, Publisher, Inc., New York City  
 RILEM: Reunion International des Laboratoires d'Essais et de  
       Recherches sur les Materiaux et les Constructions,  
       Paris. (Affiliate of International Association of  
       Testing and Research Laboratories for Materials and  
       Structures).  
 RIMR: Rockefeller Institute for Medical Research, New York  
 RMS: Royal Meteorological Society, London  
 RMIS: Royal Microscopical Society, London  
 Ronald: Ronald Press Co., New York  
 RPS: Royal Photographic Society, London  
 RRE: Radar Research Establishment, Malvern, England  
 RSL: Royal Society of London  
 RTI: Research Triangle Institute, Durham, N. C.  
  
 SAA: Standards Association of Australia, Sydney  
 SAC: Society for Analytical Chemistry, London  
 SAE: Society of Automotive Engineers, New York  
 Sams: Howard W. Sams & Co., Indianapolis  
 SAS: Society for Applied Spectroscopy, Bound Brook, N. J.

SEE: Society of Electrical Engineers, Bangalore, India  
 SEM: Society of Electron Microscopy (Japan), Chiba City  
 SESA: Society for Experimental Stress Analysis, Westport, Conn.  
 SFM: Societe Francaise des Mecaniciens, Paris  
 SFP: Societe Francaise de Physique, Paris  
 SI: Shirley Institute, Manchester, England  
 SIAM: Society for Industrial and Applied Mathematics,  
       Philadelphia  
 SICF: Societe des Ingenieurs Civils de France, Paris  
 Siemens: Siemens & Halske Aktiengesellschaft, Berlin-Siemensstadt  
 SIF: Societa italiana di fisica, Bologna  
 SIT: Society of Instrument Technology, London  
 SITA: Society for Instrument Technology, Australia, Melbourne  
 SITJapan: Society of Instrument Technology, Japan, Tokyo  
 SLA: Special Libraries Association, New York  
 SMF: Sveriges Mekanförbund, Stockholm  
 SMPTE: Society of Motion Picture and Television Engineers,  
       New York  
 Smith-  
       sonian: Smithsonian Institution, Washington  
 SNT: Society for Nondestructive Testing, Evanston, Ill.  
 Soprodod: Societe de Productions Documentaires, Paris  
 SOTELEC: Societe mixte pour le Developpement de la Technique  
       des Telecommunications sur Cables, Paris  
 Speller: Robert Speller and Sons, Inc., New York  
 Sperry: Sperry-Rand Corp., New York  
 SPIE: Society of Photographic Instrumentation Engineers,  
       New York  
 SPLE: Society of Plastics Engineers, Greenwich, Conn.  
 Sprin-  
       ger: J. Springer Verlag, Berlin, and Lange-Springer Wissen-  
       schaftliche Buchhandlung, Berlin  
 SPSE: Society of Photographic Scientists and Engineers,  
       Washington  
 SRI: Southeastern Research Institute, Atlanta  
 SSA: Seismological Society of America, Berkeley  
 SSC: Societe Suisse de Chronometrie, Lausanne  
 SSJ: Seismological Society of Japan, Tokyo  
 SSSR: Soyuz Sotsialisticheskikh Sovetskikh Respublik(=USSR)  
 Stan-  
       ford: Stanford University Press, Stanford, Calif.  
 STAR: Scientific and Technical Aerospace Reports (NASA),  
       Washington  
 Stein-  
       kopff: Steinkopff Verlag, Dresden and Frankfurt and  
       Dr. Dietrich Steinkopff, Darmstadt  
 SVMT: Schweizer Verband für die Materialprüfung der Technik,  
       Solothurn  
  
 Taylor: Taylor Instrument Cos., Rochester, N.Y.  
 Taylor-F: Taylor and Francis, Ltd., London



TCU: Texas Christian University Press, Fort Worth  
 Technology  
 Press: same as MIT Press  
 TELE: Kungliga Telestryrelsen, Stockholm  
 Temple: Temple Press Ltd., London  
 Teubner: B. G. Teubner Verlag, Stuttgart  
 Thieme: Georg Thieme Verlag, Stuttgart  
 Thomas: Chas. C. Thomas, Publishers, Springfield, Ill.  
 Thomas Re-  
 gister: Thomas Publishing Co., Chicago  
 TI: Technical Information Co., Ltd., London  
 TNO: Toegepast Natuurwetenschappelijk, Onderzoek. The Hague  
 (see also NIDR).  
 Toronto: University of Toronto Press, Toronto  
 TP: Technical Press, Ltd., London  
 TRI: Textile Research Institute, Princeton, N.J.  
 Tudor: Tudor Publishing Co., New York (sales for Chemical  
 Publishing Co.)

UCLA: University of California at Los Angeles  
 UDC: Universal Decimal Classification  
 UKAEA: United Kingdom Atomic Energy Authority, Risley  
 UKW: Ultrakurzwellen = microwaves  
 UL: Underwriters' Laboratories, Chicago  
 UN: United Nations, Geneva and New York  
 UNESCO: United Nations Educational, Scientific and Cultural  
 Organization, Paris  
 Ungar: Frederik Ungar Publishing Co., New York  
 United: United Trade Press, Ltd. and United Science Press,  
 Ltd., London

United Cat-  
 alog: United Catalog Publishers, Inc., Hempstead, N. Y.  
 Unwin: Geo. Allen & Unwin, Ltd., London  
 USDA: U. S. Department of Agriculture, Washington  
 USGS: U. S. Geological Survey, Washington  
 USNI: U. S. Naval Institute, Annapolis  
 USPO: United States Patent Office, Washington  
 USSR: Union of Socialistic Soviet Republics. ( = SSSR)

Van Nos-  
 trand: D. Van Nostrand Co., Princeton, N. J.  
 VDC: Verein deutscher Chemiker, Berlin  
 VDE: Verein deutscher Elektrotechniker, Berlin  
 VDI: Verein deutscher Ingenieure, VDI Verlag, Berlin  
 VDMA: Verein deutscher Maschinenbau-Anstalten, Frankfurt a/M  
 VDPG: Verband deutscher physikalischen Gesellschaften,  
 Braunschweig  
 VEB: VEB Fachbuchverlag, Leipzig  
 Verlag  
 Chemie: Verlag Chemie, Weinheim

Verlag

Technik: VEB Verlag Technik, East Berlin

Vieweg: Friedr. Vieweg und Sohn, Braunschweig

VINITI: Vsesoyuznyi institut nauchnoi i tekhnicheskoi informatsii, Moscow

VNIIM: Vsesoyuznyi nauchno-issledovatel'skogo instituta metrologii, Leningrad

WADC Wright Air Development Center;

WADD: Wright Air Development Division, Dayton

WBAN: Weather Bureau-Air Force-Navy (in joint publications)

Wiley: John Wiley and Sons, Inc., New York

Williams: Williams & Wilkins, Baltimore (Waverly Press)

Wilson: H. W. Wilson Co., New York

Winter: C. F. Winter Verlag, Füssen

Wis-

consin: University of Wisconsin, Madison

Year

Book: Year Book Medical Publishers, Chicago

Zani-

chelli: Nicola Zanichelli Editore, Bologna

Zeiss: VEB Carl Zeiss, Jena (DDR)

## II. BIBLIOGRAPHY

### 2.1 ABSTRACTING AND INDEXING SERVICES

Many abstract journals use a subject-classified arrangement of entries to facilitate scanning and searching, but references pertinent to instrumentation may be expected to appear anywhere.

#### 2.1: A100 General Science: Life Sciences

1. Science Abstracts of China. ISTI. Bimonthly, 1958-59; 1963--.  
Over 3000 abstracts per year, in English, from Communist Chinese literature. Sections: Life Sciences; Chemistry; Earth Sciences; Mathematical and Physical Sciences, Technical Sciences
2. Index Medicus. NLM. Monthly, 1960--. Original title changed to Current List of Medical Literature (1941-59) resumed 1960; annual cumulation, issued by AMA, replaces Quarterly Cumulative Index Medicus. About 145,000 entries per year.
3. Japan Science Review. Tokyo. Mechanical and Electrical Engineering. Bimonthly, 1955--. Biological Sciences Annual 1951--. Medical Sciences, Quarterly, 1954--.
4. Bulletin signaletique. CNRS. Monthly, 1940--. (Title was Bulletin analytique, 1940-55). From 1961, in 22 separate subject sections, several rich in instrumentation. In subject scope and number of abstracts about 225,000 per year, second only to Referativnyi Zhurnal (USSR).
5. Technical Abstract Bulletin: TAB. DDC. Semimonthly, 1951--; about 28,000 abstracts of technical reports per year. (Successor to Technical Information Pilot, TIP, 1948-51). See next entry.
6. U. S. Government Research Reports. OTS. Semimonthly, 1946--; about 40,000 entries per year. Merged with unclassified TAB, 1961.
7. Zentralblatt für Mathematik und ihre Grenzgebiete. Springer. Irregular, 1913--. About 800 abstracts per year. (Mechanik section was separate, 1933-44) as Zentralblatt für Mechanik).
8. Referativnyi Zhurnal. VINITI for Nauk. Quarterly to semimonthly; more than 50 subject sections (1963), up from 5 in 1953; over 600,000 abstracts per year. Sections for Automation; Electronics; Optical Instruments; Metrology; Instrumentation; Aerospace Sciences; Mechanics, etc. Medicine is covered independently by the Academy of Medical Sciences.

## 2.1 A100 (Cont.)

9. Science Abstracts. Monthly, 1898--. IEE. Sections: A. Physics Abstracts, about 15,000 abstracts per year. B. Electrical Engineering Abstracts, about 7000 abstracts per year.
10. Mathematical Reviews.. AMaS. 11 issues yearly, 1940--; about 12,000 abstracts per year.
11. Abstracts of Selected Articles from Soviet Bloc and Mainland China Technical Journals. OTS. Monthly, 1961--, in 6 series: I. Physics. II. Chemistry. III. Metallurgy. IV. Engineering. V. Communications. VI. General Science and Life Sciences. About 18,000 abstracts per year.
12. Current Technical Papers. Bell Labs. Semimonthly, 1962--. Supersedes Index to Current Technical Literature. A. Journals (1923-61). About 25,000 entries per year.
13. Biological Abstracts. Semimonthly, 1927--. Over 100,000 abstracts per year. Biological Abstracts Subject in Context (BASIC) index in each issue; subject index cumulated quarterly. Instrumentation mainly in microscopy, **cerebral devices** and microbiological apparatus.

2.1: A200 Instrumentation. These abstract journals are the most concentrated sources of past and current instruments information.

1. Dechema Literatur-Schnelldienst. Dechema. Monthly, 1953--. Apparatus and equipment.
2. Gas Chromatography Abstracting Service. Preston. Weekly, on cards, 1959--; around 1500 abstracts per year.
3. Automation Express. IPI; 10 issues per year, 1958--. Abstracts and translations from Soviet literature.
4. Instrumentation Abstracts. Preston. Weekly, 1960--. About 2000 abstracts per year on cards; patents included.
5. Strain Gage Readings. Phoenix, Arizona. Bimonthly, 1958--; about 700 abstracts per year.
6. Applied Mechanics Reviews: Critical Review of the World Literature in Applied Mechanics. ASME. Monthly, 1948--. About 7000 abstracts per year.
7. Gas Chromatography Abstracts. Butterworth. Annual, 1958--.
8. Advances in Biological and Medical Physics. Academic Press. Annual or biennial, 1948--.
- 8a. Laser Abstracts. Plenum Press, Annual, 1964--.



2.1: A200 (Cont.)

9. Instrument Abstracts. BSIRA. Monthly, 1946-- (formerly Bulletin of the BSIRA).

2.1: A300 Electricity and Electronics

1. Semiconductor Abstracts. BMI. Annual, 1955--; about 2500 abstracts per year.
2. Data Processing Digest. Monthly, 1955--; about 300 abstracts per year.
3. Bibliografia Elettrotecnica: Rassegna mensile della stampa tecnica italiana e straniera. ANIDEL. Combines former separate issues for Italian and other literature. Monthly, 1947--.  
Around 15,000 entries per year.
4. Computer Abstracts and Bibliography. TI. About 3000 entries per year.
5. Abstracts and References. IRE. Monthly, 1946--. Section in IRE Proceedings, supplied by Electronic Technology (London).  
About 4000 abstracts per year. Discontinued after January 1963.
6. Technical News Bulletin. AEI Ltd. Weekly, 1926--. About 3000 abstracts (electricity, electronics) per year.
7. Computing Reviews. ACM. Bimonthly, 1961--. About 1500 abstracts per year.
8. Digest of Literature on Dielectrics. NAS-NRC. Annual, 1936--.
9. Bibliography and Abstracts on Electrical Contacts. ASTM. Annual, 1943--; around 300 abstracts per year.
10. Elektronentechnische Berichte: Forschungsberichte und Referatenkartei für das Gebiet der Hochfrequenztechnik, ihre Grenzgebiete und Anwendungen. IWB. RATEM. Irregular, 1947--.  
Reviews about 1500 periodicals.
11. Reliability Abstracts and Technical Reviews. RTI and NASA. Annual, 1961--.
12. Computer Abstracts on Cards. Cambridge (Mass.) Communications Corp. About 5000 abstracts per year.
13. Abstracts of Computer Literature. Burroughs Corp., Pasadena. Bimonthly, 1957--; about 1500 abstracts per year.
14. Electronics and Communications Abstracts. Brentwood, England. Bimonthly, 1961--; around 5000 abstracts per year.

2.1: A300 (Cont.)

15. Bulletin signaletique des telecommunications, CNET. Monthly supplement to Annales des telecommunications, 1946--. About 12,000 abstracts per year.

2.1: A400 Physics

1. Solid State Abstracts. Cambridge, Mass. Monthly, 1960--(formerly Semiconductor Electronics). Card service. About 5000 abstracts per year, including patents.
2. Reports on Progress in Physics. IP and PS. Nearly annual, 1945--. Cumulative index (v.1-15) in v.15, 1952.
3. Nuclear Science Abstracts. AEC. Semimonthly, 1947--. About 33,000 abstracts per year.
4. Meteorological and Geostrophysical Abstracts. AMS. Monthly, 1950-59 as Meteorological Abstracts; renamed 1960. About 11,000 abstracts per year; card issues and monthly UDC and permuted title indexes.
5. Geophysical Abstracts. USGS. Quarterly, 1929--. About 1600 abstracts per year.
6. Geoscience Abstracts. AGI. Monthly, 1959--. About 4500 abstracts per year.
7. Physikalische Berichte. VDPG. Monthly, 1920--. Merger of Beiblätter zu den Annalen der Physik. (1877-1919) and the annual Fortschritte der Physik (1847-1919). Over 15,000 abstracts per year.
8. Zentralblatt für Kernforschung und Kerntechnik. Akademie. Monthly, 1961--; about 10,000 abstracts per year. (Was Kerntechnik section of Technisches Zentralblatt, 1958-60).
9. Rheology Abstracts: A Survey of World Literature. BSR. Quarterly, 1958--(formerly carried in Bulletin of the BSR). About 700 abstracts per year.

2.1: A500 Chemistry

1. Spectrochemical Abstracts. Hilger. Irregular, 1933--. In 6 vols. 1933-55, about 2300 abstracts. Not identical with the Abstracts of Recent Papers Section, 1956--, in Hilger Journal.
2. Chemical Abstracts. ACS. Biweekly, 1907--. Indexes: Annual, 1907--; decennial, 1907-56; quinquennial, 1957--. About 8000

## 2.1: A500 (Cont.)

abstracts in 1907, over 166,000 in 1962. New subject division (1961) in 73 sections, 59 available in 4 parts for separate subscription: Physical, Inorganic, Analytical (1-14); Organic (26-38); **Macromolecular** (37,38 and 41-50); Biochemical (54-73). Features added in 1963: Patent Concordance, with the numerical patent index in each issue (corresponding patents in other nations). Keyword Index, a permuted subject index, in each issue.

3. Analytical Abstracts. SAC. Monthly, 1954--. About 5000 abstracts per year.
4. Chemisches Zentralblatt, Akademie. Weekly, 1830--. Cumulative indexes (mostly quinquennial), 1870-81 and 1897--. Suspended 1945-46, and divided (West and East Germany), 1946-50. Several subject sections rich in instrumentation.

## 2.1: A600 Engineering

1. Bulletin of the BMRA. Irregular, 1948--. About 500 abstracts per year.
2. Corrosion Abstracts. Bimonthly, 1962--. Published as a section in Corrosion, 1945-61. NACE. About 2000 abstracts per year. Independent Swedish abstracts, same title, using NACE filing system; IVA: 10 issues, about 2000 abstracts per year.
3. Technisches Zentralblatt. Akademie. Monthly. Sections:  
Elektrotechnik, 1951--, about 10,000;  
Maschinenwesen, 1952--, about 10,000;  
Energiewesen, 1957--, about 6000 abstracts per year.  
Kerntechnik (1958-60) separated in 1961 as Zentralblatt für Kernforschung und Kerntechnik.
4. International Aerospace Abstracts. AIAA. Semimonthly, 1961--; annual index is Aerospace Engineering Index. Predecessor was Aeronautical Engineering Review (1940-60) and its annual index Aeronautical Engineering Index. Over 10,000 abstracts per year. Synchronized, 1963, with STAR (NASA) in alternating issue dates and divided coverage: AIAA covers world literature NASA covers only technical reports (its own and others).
5. Zentralblatt für Werkstofforschung. Springer. Irregular, 1941--.
6. Engineers Digest: Design, Production, Research, Development, London, Monthly, 1940--. (Abstracts, digests, new products and processes). Includes patents.

2.1: A600 (Cont.)

7. Checklist of Periodical Titles. PAL. Semiweekly, 1941--; about 12,000 entries per year. Uniterm Index to Periodicals. Weekly, 1944--; quarterly and annual cumulations; card service; about 12,000 entries per year.
  8. Bulletin signaletique: Service de documentation et d'information technique de l'aeronautique. Cité de l'Air, Paris. Semi-monthly, 1945--. Classified abstracts, on cards; about 9500 per year.
  9. Abregés techniques. Dunod. 11 issues per year, 1962--.
  10. Environmental Effects on Materials and Equipment. PDC. Semi-monthly, 1961--, in two sections: A. Chemical and Biological (continues PDC Abstracts, 1946-61). B. Physical and Engineering. About 2500 abstracts per year from literature and patents.
  11. Battelle Technical Review. BMI. Monthly, 1929--(formerly Battelle Library Review). Original papers and about 15,000 abstracts per year.
  12. Astronautics Information Abstracts: Reports and Open Literature. JPL. Monthly, 1962--. Merger 1962 of two sections: Abstracts Information: Reports (1959-62) and Abstracts Information: Open Literature (1959-62).
  13. Engineering Index. ESL. Annual, 1885-1961; monthly, 1962--. Cards in subject classes, 1928--. About 34,000 abstracts per year. Some classes rich in instrumentation.
  14. ZAA: Zentralblatt der Aero- und Astronautik. Quarterly, 1961--; about 1000 abstracts per year from German literature.
  15. Nuclear Engineering Abstracts. London, Quarterly, 1960--.
  16. STAR: Scientific and Technical Aerospace Reports. NASA. Semi-monthly, 1958--. Subject, name and number indexes in each issue, cumulated quarterly, semiannually and annually. Limited to technical reports; AIAA covers world publications in International Aerospace Abstracts, alternating with STAR in semimonthly dates of issue. Microcopy service standardized with that of AEC, 1963.
  17. Index aeronauticus. Monthly, 1945--. London. About 3500 abstracts per year.
- 2.1: A700 Process Industries. These specialized abstract journals are often the best first source for finding information or literature on the instrument auxiliaries needed in all industrial processes.



2.1: A700 (Cont.)

1. Textile Technology Digest. ITT. Monthly, 1944--. About 6000 abstracts per year.
2. Highway Research Abstracts. NRC. Monthly except August, 1931--. About 500 abstracts per year.
3. Metallurgical Abstracts. IM. Monthly, 1931--(in Journal of the IM). About 6000 abstracts per year.
4. Crerar Metals Abstracts. JCL. Monthly, 1952--; about 2500 abstracts per year.
5. Gas Abstracts. IGT. Monthly, 1945--; also card service. About 3500 abstracts per year.
6. Ansco Abstracts. GAFC. Monthly, 1941--; card service; about 3500 abstracts per year.
7. Jernkontorets Litteraturöversikt. Stockholm. Monthly, 1949--. About 2000 abstracts per year by subjects (including instrumentation).
8. British Ceramic Abstracts. BCeS. Monthly, 1902--(in Transactions of the BCeS). About 3000 abstracts per year.
9. Photographic Abstracts. RPS. 8 issues per year, 1921--; over 2000 abstracts per year.
10. Abstracts and Current Titles. Monthly, 1947--(title was Fuel Abstracts till 1960). About 8500 abstracts per year.
11. Verfahrenstechnische **Berichte**. Chemical and Process Engineering Abstracts. Verlag Chemie. Weekly, 1932--. Over 5000 abstracts per year; instrumentation included.
12. Abstracts of Photographic Science and Engineering Literature. **Columbia for SPSE**. Monthly, 1962--. About 4500 abstracts per year..
13. Ceramic Abstracts. ACeS. Monthly, 1922--(in Journal of the ACeS). About 4000 abstracts per year.
14. Summary of Current Literature. SI. Semimonthly, 1921--; about 5000 abstracts per year. (Textile technology and testing).
15. Bulletin de documentation ceramique. ICF. Quarterly, 1940--. About 1000 abstracts per year.
16. Air University Library Index to Military Periodicals. Air University, Maxwell AFB. Monthly, 1949--. Annual and triennial cumulations. (Title, 1949-1962, was Air University Periodical Index).

## 2.2 BIBLIOGRAPHIES

The distinction between serially published bibliographies and the indexing services entered in 2.1 is not always sharp. Both 2.1 and 2.2 should be consulted when there is doubt.

Caution: Do not rely on prior bibliographies sight unseen. The time they can save is valuable, but the price may be too high if the bibliographer has neglected to define with all possible clarity his subject scope, time coverage and sources consulted. Let bibliographers heed this caution and unfailingly preface their work with proper definitions.

### 2.2: B100 Instrumentation

1. R. Navrodineanu, Bibliography on Analytical Flame Spectroscopy. CLS, 1962; 766 entries.
2. Bibliography on Medical Electronics. IRE. (IEEE). Annual, 1958--; about 2000 entries per year.
3. Paul D. Freeze, Bibliography on the Measurement of Gas Temperature. NBS Circular 513. 1952; 114 pp.
4. Rasseyanie sveta i infrakrasnaya spektroskopiya: Bibliograficheskii ukazatel', 1928-40. Moscow, 1961; 452 pp. (Light and infrared radiation).
5. Bibliography of Seismology. DO. Semiannual, 1929--; about 1000 entries per year.
6. Soviet Seismology and Seismometry: A Preliminary Bibliography, 1958-60. LC. 1961--; nearly 1000 entries.
7. Titulos Spectroscopic: Un periodico del titulos de omne articulos super themas spectroscopic publicate ubicunque in le mundo. CLS. Semimonthly, 1962--. (Text in Interlingua).
8. International Bibliography of Electron Microscopy. NYSEM. Irregular, 1950--; card service.
9. Bibliografia polarografica. Padua. Annual, 1949--. About 800 entries per year.
10. ITC International Bibliography for Photogrammetry. ITC. Irregular(on cards), 1958--; around 1000 abstracts per year.
11. Bibliography on Thermostatic Bimetals, Low-expansion Alloys, and Their Application. ASME. 1950; 52 pp.

## 2.2: B100 (Cont.)

12. USSR Missiles Rockets and Space Effort: Bibliographic Record, 1956-60. U. S. Army and GPO, 1960; 49 pp. (References mainly from American sources).
13. C. Halpern and R. J. Moffat, Bibliography of Temperature Measurement, 1953-60. NBS Monograph 27, 1961; 13 pp.
14. Index to the Literature of Spectrochemical Analysis. ASTM. Irregular (about 5 year intervals), 1941--; literature coverage from 1920.
15. Bibliography of Polarographic Literature. Leeds-Northrup, 1950; 2208 references.
16. H. Yakowitz and J. R. Cuthill, Annotated Bibliography on Soft X-Ray Spectroscopy. NBS Monograph 52, 1962; literature of 1950-60; 108 pp.
17. C. A. Mabey, Bibliography on Telemetering. AIEE. (IEEE) Pub. No. S-68, 1954; 46 pp.
18. W. G. Brombacher and T. W. Lashof. Bibliography and Index on Dynamic Pressure Measurements. NBS Circular 558, 1955; 124 pp. 850 references.
19. Tibor W. Marton and Ralph Klein, Soviet Research in Field Electron and Ion Emission, 1955-59. Annotated Bibliography. NBS Tech. Note No. 75, 1960. TN 234, 1964, for 1960-63.
20. Joseph Pearlstein, Measurement of Displacement, Velocity and Acceleration: Bibliography with Abstracts and Index. DOFL. Rept. TR-836, 1960; 188 pp.
21. Vernon E. Coslett, editor, Bibliography of Electron Microscopy. Longmans, 1951; 350 pp.
22. Air Force Scientific Research Bibliography, 1950-56. AFOSR and OAR. v.I, AFOSR 700, 1961; 1150 pp.
- 23.. Japanese Periodicals Index: Natural Sciences, Tokyo. Monthly, 1960--.(English language edition).
24. Australian Science Index: Articles Published in Australian Scientific and Technical Periodicals. CSIRO. Monthly, 1957--. About 4000 entries per year. Supplement in preparation, 1963.

## 2.2: B200 Automation and Control

1. Current Bibliography on Analog and Digital Computers and Their Applications. LCC. Quarterly, 1954--; about 24,000 entries

per year; text in English and German.

2. International Bibliography of Automatic Control. IFAC. Quarterly, 1962--.
  3. **Schrifttumsberichte** aus der Regelungstechnik. VDI, 1941-45 (in 1 issue of VDI Zeitschrift annually). Resumed, 1955--, as Regelung.
  4. Warren F. Wade and Emory N. Kemler, Automatic Control Bibliography. Summary Reports, Spring Park, Minn., 1955; 331 pp.
  5. Emile and K. Delavenay, Bibliography of Mechanical Translation. Mouton. 1960; 69 pp.
  6. Implications of Automation and Other Technological Developments: A Selected Annotated Bibliography. BIS Bull. 1319, 1962; 136 pp.
  7. Bibliography on Feedback Control. Applications in Industry. AIEE (IEEE), 1954; 2083 references.
  8. N. I. Damaskine, Avtomatizatsiya v mashinostroenii: Bibliograficheski spravochnik otechestvennoi i inostrannoi literatury za 1950-1959. Moscow, 1961; 522 pp (Automation and machine design; world literature.)
  9. A. F. Armstrong and G. I. Maughan, Some Recent Developments in Automatic Control: Information Bibliography. UKAEA, 1957; 178 entries.
  10. Bibliography on the Use of IBM Machines in Science, Statistics and Education. Columbia and IBM, 1952; revised 1954 (60 pp), 1956 (81 pp.).
  11. Annotirovannyi ukazatel' literatury avtomatika, telemekhanika, pribostroenie. Nauk. Annual, 1958--.. (Automation and remote control).
- 2.2: B300 Telecommunications. Interpreting telecommunications broadly, this section includes audio and video transmission, radar, and other ways of propagating signals. Overlap with electricity and electronics necessitated many arbitrary placement decisions; the subject index will help.
1. C. Marton et al., Bibliography of Electron Microscopy. NBS Circular 502, 1950; 87 pp.(to 1950).
  2. Selected Foreign References on Scatter Propagation of Ultrashort Waves, 1956-60, LC. 1961.



2.2:B300 (Cont.)

3. Radar and Radio Navigation: Annotated Bibliography, 1950-59. LC. 1960 (AID Rept. 60-55).
4. Wayne B. Nottingham, editor, Bibliography on Physical Electronics. Addison, 1954; 428 pp.
5. C. K. Moore and K. I. Spencer, Bibliography of Electronics. Macdonald, 1961; 411 pp.
6. **Radioastronomiya Annotirovannyi bibliograficheskii ukazatel' otechestvennoi i inostrannoi literatury, 1932-58.** Nauk, 1960; 216 pp.
7. Tokoyushi Kono: Bibliography on Transistors. Tokyo, 1959; 288 pp. (Japanese text).
8. Annotirovannyi ukazatel' literatury po radioelektronika. Moscow. Semimonthly, 1945--.
9. Radiowave Propagation. LC. 1961; 261 entries (Soviet sources).
10. L. A. Manning, Bibliography of the Ionosphere (1925-60). Stanford, 1962, 614 pp.

2.2:B400 General, or Not Otherwise Classified (A)

1. R. M. McClintock and H. P. Gibbons, Mechanical Properties of Structural Materials at Low Temperatures: A Compilation From the Literature. NBS Monograph 13, 1960; 180 pp.
2. Ernest F. Flock and Carl Halpern, Bibliography of Books and Published Reports on Gas Turbines, Jet Propulsion and Rocket Power Plants. NBS Circular 509, 1951; 64 pp. and Supplement (1954).
3. Current Contents: Space, Electronic and Physical Sciences. IScI. Weekly, 1962--.
4. T. M. Flynn. Bibliography of the Physical Equilibria and Related Properties of Some Cryogenic Systems. NBS-TN 56, 1960; 123 pp.
5. Index to the Literature of Magnetism. Bell Labs., Semiannual, 1962--.
6. J. N. Brennan, Bibliography on Shock and Shock-Excited Vibrations. Res. Eng. Bull. No. 68, Penn. State Univ., 1957: v.1, 348 pp.; 1958, v.2, 181 pp.

2.2:B400(A) (Cont.)

7. Lawrence A. Manning, Bibliography of the Ionosphere: Annotated Survey through 1960. Stanford, 1962; 613 pp.
8. Classified Bibliography of X-Ray and Electron Diffraction Papers. Bell Labs. Semiannual.
9. Quarterly Check Lists. ABS. Geophysics, 1960--; about 300 entries per year. Mathematica, 1961--; about 450 entries per year. Physics, 1960--; about 600 entries per year.
10. Bibliography on Plasma Physics and Magnetohydrodynamics. Maryland, 1959.
11. A. Henley and C. L. Schnettler, Electrophoresis Bibliography, AI. Ed. 2, 1955; 290 pp.
12. S. B. Sells and E. S. Barratt, editors. Bioelectronics Abstracts. TCU, 1961; 207 pp.

2.2:B400 General, or Not Otherwise Classified. (B.)

1. British Technology Index. LA. Monthly, 1962--. Includes control, computers and instrumentation.
2. C. K. Moore and K. J. Spenser, Electronics: Bibliographical Guide, MacDonald, 1961; 411 pp.
3. Theodore Besterman, World Bibliography of Bibliographies and of Bibliographical Catalogs, Calendars, Abstracts, Digests, Indexes and the Like. Geneva. Ed. 3, 1956; 5701 columns in 4 v.

2.2B400 General, or Not Otherwise Classified (C).

1. W. Niedergall, Kältetechnik und Thermodynamik. Literaturverzeichnis über Kältetechnik und Kälteanwendung, Klimatechnik, Wärmetheorie, Wärmedübertragung und Wärmewirtschaft. Springer, 1961; 68 pp.
2. AED Information Service: Indexed Bibliography. Conference Papers, Dissertations, Patents, Reports. AED. English language edition; irregular, 1957--. About 6000 entries per year (nuclear energy).
3. Universalbibliographie Technik und Wirtschaft. DT. Annual, 1959--. About 48,000 entries per year.

## 2.2:B400(C) (Cont.)

4. Zeitschriftenschau. VDI. Semimonthly, 1916--; section in VDI Zeitschrift. (Formerly Technische Zeitschriftenschau). About 7500 entries per year.
5. A. H. Sokoll, Bibliographie zur Aero- und Astronautik: Deutschsprachige Shrifftum 1945-1960. Springer, 1962; 206 pp.
6. Repertorium technicum. NIDR. Irregular, 1931--. Bibliography (books and articles).
7. Bibliographie der Veröffentlichungen über Hydro- und Aerodynamik der Modellen-versuchsanstalt (nun MPI), 1907-59. MPI Mitteilung 25, 1960; 136 pp.

## 2.2:B400 General, or not Otherwise Classified. (D.)

1. Report on Scientific Work in Meteorology and Physics of the Atmosphere, 1957-59. Nauk and OTS. JPRS Translation No. 7455; nearly 2000 references.
2. Kosmicheskie luchi: Bibliograficheskii ukazatel' 1956-60. Nauk, 1961; 183 pp. (cosmic rays).
3. Indice bibliografico. CIIPN. Monthly, 1952--. Title was Boletin del Centro de Documentacion Cientifica y Tecnica de Mexico, 1952-61. Separate sections for: 1. Physical sciences. 2. Engineering. 3. Chemistry. 4. Medicine. 5. Life sciences. About 100,000 entries per year.
4. A. M. Lukomskaya, Bibliograficheskie istochniki po matematike i mekhanike, izdanye v SSSR v 1917-52. Nauk, 1957; 354 pp. Supplement, 1953-60. 1963; 272 pp.

## 2.3 BOOKS, MONOGRAPHS, REFERENCE WORKS

This guide generally excludes separates (library talk for single publications, too small to be books, too miscellaneous to classify). Exceptions are separates which grew up to book size, at least in utility, and are too significant to be ignored. Separates include dissertations, bulletins, technical reports and a variety of single publications issued by government agencies, scientific societies, etc., through whose publication lists they can be traced.

## 2.3: 1000 Reference Works, Handbooks, Data Compilations..(A.)

1. Robt. H. Perry, Cecil H. Chilton and Sidney D. Kirkpatrick, eds., Chemical Engineers Handbook. McGraw-Hill. Ed. 4, 1963.

2. H. L. Horton, editor. Machinery's Handbook. Industrial. Ed. 16, 1959; 2104 pp.
3. Edw. U. Condon & Hugh Odishaw, Handbook of Physics. McGraw-Hill, 1958; 1504 pp.
4. Archer E. Knowlton, editor, Standard Handbook for Electrical Engineers. McGraw-Hill. Ed. 9, 1957; 2230 pp.
5. W. E. Forsythe, editor, Smithsonian Physical Tables. Smithsonian Meteorological Tables.. 1951; 527 pp.
6. Dwight E. Gray, editor, AIP Handbook. AIP, 1957; 8 sections.
7. Chas. L. Mantell, editor. Engineering Materials Handbook. McGraw-Hill, 1958; 1906 pp.
8. Darle W. Dudley, editor. Gear Handbook: Design, Manufacture and Application of Gears. McGraw-Hill, 1962; 24 sections.
9. Ovid W. Eshbach, editor, Handbook of Engineering Fundamentals. Wiley, Ed. 2, 1952; 1322 pp.
10. Jos. M. Juran, editor, Quality Control Handbook. McGraw-Hill. Ed. 2, 1962; 1220 pp.
11. ASME Handbook. McGraw-Hill. Ed. 1. I. O.J.Horger, Metals Engineering: Design, 1953; 405 pp. II. S.L.Hoyt, Metals: Properties, 1954; 445 pp. III. Jesse Huckert, Engineering Tables, 1956; 692 pp. IV. R.W.Bolz, Metals Engineering: Processes, 1958; 448 pp.
12. T. Croft and C. C. Carr, American Electricians Handbook. McGraw-Hill. Ed. 8, 1961; 1773 pp.
13. Harry D. Husky and G. A. Korn, Computer Handbook. McGraw-Hill, 1961; 1288 pp.
14. Handbook of Geophysics. AF and Macmillan, 1960; 22 sections.
15. Robt. W. Landee, D. C. Davis and A. P. Albrecht, Electronic Designers' Handbook. McGraw-Hill, 1957; 23 sections.
16. Miklos I. Hetenyi, Handbook of Experimental Stress Analysis. Wiley, 1950; 1077 pp.
17. Lloyd P. Hunter, editor, Handbook of Semiconductor Electronics. McGraw-Hill. Ed. 2, 1962; 900 pp.
18. Henry Jasik, editor, Antenna Engineering Handbook. McGraw-Hill, 1961; 1013 pp.



2.3:1000(A) (Cont.)

19. Clifford Strock, editor, Handbook of Air Conditioning, Heating and Ventilating. Industrial, 1959; 1112 pp.
20. Frank W. Wilson and P. D. Harvey, Tool Engineers Handbook. McGraw-Hill. Ed. 2, 1959; 103 sections.
21. Norbert A. Lange, editor, Handbook of Chemistry. McGraw-Hill. Ed. 10, 1961; 1969 pp.
22. Robt. I. Sarbacher, Encyclopedic Dictionary of Electronics and Nuclear Engineering. Prentice-Hall, 1959; 1417 pp.
23. Metals Handbook. ASM. Ed. 7, 1948. Carried to 1960 by supplements. Ed. 8, 1961--, v. I. Properties and Selection of Metals, 1300 pp. v. II. Heat Treating, Cleaning and Finishing, 1964; 700 pp.
24. Harold Pender, editor, Electrical Engineers' Handbook. Wiley. Ed. 4, 1949-50. I. Electric Power, 1716 pp. II. Communication: Electronics, 1618 pp.
25. Reactor Handbook. AEC and Wiley. Ed. 2, 1960-62; 4 v. I. Materials, 1207 pp; II. Fuel Processing, 665 pp; IIIA, Physics, 287 pp; IIIB, Shielding, 313 pp.
26. J. K. Salisbury & C. Carmichael, editors. Kent's Mechanical Engineers' Handbook. Wiley. Ed. 12, 1950. I. Power, 1409 pp. II. Design and Production, 1611 pp.
27. Chas. D. Hodgman, editor, Handbook of Chemistry and Physics. Chemical. Ed. 44, 1963; 3640 pp.
28. Theodore Baumeister, editor, Marks' Mechanical Engineers Handbook. McGraw-Hill. Ed. 6, 1958; 2320 pp.
29. Wilhelm Flügge, editor, Handbook of Engineering Mechanics. McGraw-Hill. Ed. 1, 1962; 88 sections.

2.3:1000 Reference Works (B)

1. Richard Glazebrook, Dictionary of Applied Physics. Macmillan, 1922-23; 172 monographs in 5 vols.
2. Alex. Goldsmith, Thos. E. Waterman & H. J. Hirschhorn, editors, Handbook of Thermophysical Properties of Solid Materials. In 5 v.: I. Elements. II. Alloys. III. Ceramics. IV. Cermets, Intermetallics, Polymeric and Composites. V. Appendix and Indexes. Macmillan, 1961.
3. Fritz Langford-Smith, Radiotron Designs Handbook. RCS. Ed. 4, 1953; 1498 pp.

### 2.3 :1000 Reference Works. (C)

1. G. Bleisteiner and W. von Mangoldt, editors, Handbuch der Regelungstechnik. Springer, 1961; 1516 pp; 1244 references.
2. Mogens A. Blom, editor, **El-Haandbogen: Anlaeg af installationer, Maskiner og motorer; reparationsteknik.** Copenhagen. Ed. 2, 1951; 794 pp. (Electrical devices).
3. H. Ebert, editor. Physikalisches Taschenbuch. Vieweg. Ed. 3, 1962; 611 pp.
4. Handbuch der Physik. Springer. New ed., 1955--; 54 v. Monographs in German, English or French; indexes in German and English. Groups: I. Mathematische Methoden (v.1-2). II. Prinzipien der theoretischen Physik. (v.3-5). III. Mechanisches und thermisches Verhalten der Materie (v.6-15). IV. Elektrisches und magnetisches Verhalten der Materie (v.16-23). V. Optik (v. 24-29). VI. Roentgenstrahlen und Korpuskularstrahlen (v.30-34). VII. Atom- und Molekularphysik (v.35-37). VIII. Kernphysik (v.38-45; v. 45 is Nuclear Instrumentation). IX. Kosmische Strahlung (v.46). X. Geophysik (v.47-49). XI. Astrophysik (v.50-54).
5. Josef Kroenert, editor, Handbuch der technischen Betriebskontrolle. Akademische. v.2. Mengenmessungen in Betrieb, 1955; 662 pp. v.3. Physikalische Messmethoden. Ed. 3, 1959; 627 pp. v.4. Physikalisch-chemische Analyse im Betrieb, 1953; 621 pp.
6. Maurice D. Papin, editor, Electrotechnique, electronique, telecommunications: Notes et formules de l'ingenieur. Paris, 1962; 2146 pp.
7. F. Sass, C. Bouche' and A. Leitner, editors, Dubbek Taschenbuch für den Maschinenbau. Springer, Ed. 12, 1961. Vols. I and II 884 and 970 pp.
8. K. Steinbuch, editor, Taschenbuch der Nachrichtenverarbeitung: Grundlagen und Technik der Rechanautomaten, Datenverarbeitung und Maschinensteuerung. Springer, 1962; 1521 pp.; 2835 references.
9. Wilhelm C.W.D.Wiens & Fritz F. Harms, editors, Handbuch der Experimental-Physik. Akademische. 1926-1935; v. 1-26 and Supplements I, II bound in 49 vols.
10. Zahlenwerte und Funktionen aus Physik, Chemie, Astronomie, Geophysik und Technik. (Landolt-Börnstein). Ed. 6 in 4 v., 1950--. I. Atom- und Molekularphysik, 5 pts., 1950-55; 3203 pp. II. Eigenschaften der Materie, 10 pts., 1956-(some parts still in preparation, 1963). III. Astronomie und Geophysik, 1962



795 pp. IV. Technik, 1955--, 3 parts (Part 2 in preparation, 1963).

2.3:1100 Design of Experiments; Technique. Entered for their interest to designers and users of instruments.

1. Ronald A. Fisher, Design of Experiments. Hafner, Ed. 7, 1960; 248 pp.
2. Philip M. Morse and H. Feshbach, Methods of Theoretical Physics. McGraw-Hill, 1953; 1978 pp. in 2 v.
3. Edmund V. Cowdry, Laboratory Technique in Biology and Medicine. Williams. Ed. 3, 1952; 282 pp. Ed. 4 in prepn; 1964.
4. Ronald A. Fisher, Statistical Methods for Research Workers. Hafner. Ed. 13, 1958; 356 pp.
5. Oscar Kempthorne, Design and Analysis of Experiments. Wiley, 1952; 631 pp.
6. Wm. G. Cochran and G. M. Cox, Experimental Designs. Wiley, Ed. 2, 1957; 611 pp.
7. B. Adkins, K. F. Raby, A. W. Blackhurst, E. A. Binney & A. L. Whiteley, Rotating Amplifiers: Amplidyne, Matadyne, Magnicon, and Magnavolt and Their Use in Control Systems. George Newnes, Ltd. London, 1954.
8. J. Thewlis, R. C. Glass, D. J. Hughes and A. R. Meetham, editors, Encyclopaedic Dictionary of Physics. Pergamon, 1964; 8000 pp.; v. 1-7, A-Z; v. 8, Subject Index; v. 9, about 1000 pp., Multilingual Glossary of Physical Terms (English, French, German, Russian, Japanese, Spanish). Annual subject supplements.
9. W. E. Barr and V. J. Anhorn, Scientific and Industrial Glassblowing and Laboratory Techniques. Instruments. Ed. 2, 1959; 408 pp.
10. H. J. J. Braddick, Physics of Experimental Method. Wiley, 1954; 404 pp.

2.3:1200 Instrumentation: General. (A)

1. Forrest C. Tyson, Jr. Industrial Instrumentation. Prentice-Hall. 1961; 368 pp.
2. Howard P. Kallen, Handbook of Instrumentation and Controls. McGraw-Hill. Ed. 1, 1961; 13 sections.
3. T. G. Beckwith and N. L. Buck, Mechanical Measurements. Addison, 1961; 559 pp.
4. R. J. Sweeney, Measurement Techniques in Mechanical Engineering. Wiley, 1953, 309 pp.
5. Standards and Practices for Instrumentation. ISA, 1963, 300 pp.
6. Jas. E. Randall, Elements of Biophysics. Yearbook. Ed. 2, 1962; 339 pp. Instrumentation; control systems; mechanics; electricity; radioisotopes.
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10. W. G. Berl, editor, Physical Methods in Chemical Analysis. Academic Press. v.1, Ed. 2, 1960, 686 pp. v.2, Ed. 2, (in preparation, 1964). v.3, Ed. 1, 1956, 652 pp. v.4, Ed. 1, 1961, 476 pp.
11. Foster D. and Cornelia T. Snell, Colorimetric Methods of Chemical Analysis. Van Nostrand. Ed. 3, 1948-1961. v.1, 1948. Theory, Instruments pH, 239 pp. v.2, 1949. Inorganic Determinations, 916 pp. v.2A, 1959. Including Photometric Methods, 804 pp. v.3, 1953. Organic Compounds I; 576 pp. v.3A, 1961. Colorimetric Methods of Analysis; 576 pp. v.4, 1954. Organic Compounds II; 676 pp.
12. Edw. J. Bair, Introduction to Chemical Instrumentation: Electronic Signals and Operations. McGraw-Hill, 1962; 349 pp.
13. T. J. Williams and V. A. Lauher, Automatic Control of Chemical and Petroleum Processes. Gulf, 1961; 350 pp.
14. Louis H. Ahrens and S. R. Taylor, Spectrochemical Analysis. Addison. Ed. 2, 1961; 454 pp.
15. Arnold Weissberger, editor, Physical Methods of Organic Chemistry. Academic Press. Ed. 3, 1959-60, 4 v.; 930 + 938 + 870 + 984 pp.

2.3:3200(A) (Cont.)

16. Roger G. Bates, *Electrometric pH Determinations: Theory and Practice*. Wiley, 1954; 331 pp.
17. Pierce W. Selwood, *Magnetochemistry*. Wiley. Ed. 2, 1956; 447 pp.
18. Frank M. Biffen and Wm. Seaman, *Modern Instruments in Chemical Analysis*. McGraw-Hill, 1956; 333 pp.
19. Jos. Reilly and Wm. N. Rae, *Physicochemical Methods*. Van Nostrand. Ed. 5, 1954: v.1, *Measurement and Manipulation*, 760 pp. v.2, *Practical Measurements*, 800 pp. v. 3, *Supplement*, 690 pp.
20. Wm. H. Butz and H. J. Noebek, editors, *Instrumental Methods for the Analysis of Food Additives*. Symposium, 1960. Wiley, 1961; 288 pp.
21. Howard Purnell, *Gas Chromatography*. Wiley, 1962; 441 pp.
22. Emile M. Chamot and Clyde W. Mason, *Handbook of Chemical Microscopy*. Wiley. v. I, *Principles and Use of Microscopes and Accessories*. Ed. 3, 1958; 502 pp. v. II, *Chemical Methods and Inorganic Qualitative Analysis*. Ed. 2, 1940; 438 pp.
23. Izaak M. Kolthoff and J. J. Lingane, *Polarography*. Wiley. Ed. 2, 1952. I. *Theoretical Principles, Instrumentation and Technique*, 438 pp. II. *Inorganic and Organic Polarography*, 568 pp.
24. John R. Collins, *Electrochemical Measuring Instruments*. Rider, 1962; 128 pp.
- 25.. Erich Heftmann, editor, *Chromatography: Adsorption, Partition, Ion Exchange, Electrochromatography: Column, Slab, Paper, Gas*. Reinhold, 1961; 753 pp.
26. Paul Delahay, *New Instrumental Methods in Electrochemistry: Theory; Instrumentation and Applications to Analytical and Physical Chemistry*. Interscience, 1954; 455 pp.

2.3:3200 Chemistry: Analysis; Processes. (B).

1. International Symposium on Combustion (7th and 9th). Academic Press, 1959; 959 pp.; and 1962; 975 pp. (Instrumentation topics included).
2. Ivor Smith, editor, *Chromatographic and Electrophoretic Techniques*. London, 1960; 2 v. (v.1 is Ed. 2 of Chromatographic Techniques).
3. J. P. Phillips, *Automatic Titrators*. Academic Press, 1959; 225 pp.



2.3:3200(B) (Cont.)

4. Milan Bier, editor, Electrophoresis: Theory, Methods and Applications. Academic Press, 1959; 563 pp.
5. Richard C. L. Bosworth, Physics in Chemical Industry. Macmillan, 1950; 928 pp. (In 4 parts; Part IV, 9 chapters, is on Scientific Instruments).

2.3:3200 Chemistry: Analysis; Processes. (C).

1. F. Hecht and M. K. Zacherl, editors, Handbuch der mikrochemischen Methoden. Springer. Vol. I, Pt. 1, Organisch-präparative Methoden, 1954; 236 pp. Vol. I, Pt. 2, Waagen und Geräte, 1959; 307 pp. Vol. II, Verwendung der Radioaktivität, 1955; 423 pp. Vol. III, Anorganisch-chromatographische Methoden, 1961, 225 pp.
2. Heinz Ewald and Heinrich Hintenberger, Methoden und Anwendungen der Massenspektroskopie. Verlag Chemie, 1953; 288 pp.
3. Edgar and Michael Lederer, Progres recents de la chromatographie. I. Chimie organique et biochimique, 1949. II. Chimie minerale, 1952, Paris; 146 + 131 pp. Translated by A. T. James as Chromatography Review of Principles and Applications. Elsevier. Ed. 2, 1957; 711 pp.; 3704 references.
4. Rene Audubert and S. deMende, Principes de l'electrophorese. Paris, 1957; 201 pp. Translated by A. J. Pomerans as Principles of Electrophoresis. Hutchinson, 1959; 142 pp.
5. M. Savidan, Chromatographie. Dunod, 1958; 112 pp.
6. Heinz Appelt, Einführung in die mikroskopischen Untersuchungsmethoden. Akademische. Ed. 4, 1959; 468 pp.
7. M. Pinta, Recherche et dosage des elements traces: Spectrophotometrie d'absorption, spectrographie d'emission, polarographie. Dunod. 1962; 726 pp.
8. W. Batel, Einführung in die Korngrössenmesstechnik. Springer, 1961; 698 pp.
9. J. Hengstenberg, B. Sturm, and O. Winkler, Messen und Regeln in der chemischen Technik. Springer. Ed. 2, 1963; 1520 pp.
10. R. Freymann and M. Soutif, Spectroscopie hertzienne appliquée a la chimie: Absorption dipolaire, rotation moleculaire, resonances magnetiques. Dunod, 1960; 263 pp.

### 2.3:3300 Metals; Metallography

1. C. G. Nestler, Einführung in die Elektronenmetallographie. Springer, Ed. 2, 1961; 165 pp.
2. Stanley Raimes, Wave Mechanics of Electrons in Metals. Wiley, 1961; 382 pp.
3. V. I. Likhtman, E. D. Shchukin and P. A. Rebinder, Fiziko-khimicheskaya mekhanika metallov: Adsorbtsionnye yavleniya v protsessakh deformatsii i razrusheniya metallov. Nauk, 1962; 298 pp. (Mechanics of metal working).
4. Garth Thomas, Transmission Electron Microscopy of Metals. Wiley, 1962; 299 pp.
5. Härtemessung: Theorie und Praxis. Symposium, 1959; VDI, 1962; 199 pp.
6. H. Stüdemann, Werkstoffprüfung und Fehlerkontrolle in der Metallindustrie. Springer, 1962; 278 pp.
7. Chemical Analysis of Metals. ASTM. 1956; 640 pp. (Instrumental analysis included).
8. Werkzeugnormen: Maschinenwerkzeuge aus Schnellarbeits- und Werkzeugstahl. DNA and Beuth. Ed. 4, 1963; 296 pp.
9. C. Leymonie, Traceurs radioactifs en metallurgie physique. Dunod, 1960; 224 pp.
10. K. Schoenert and R. Eschelbach, Praktische Metallprüfung. 1. Mechanisch-technologische Prüfverfahren und ihre Anwendung. Braunschweig, 1950; 274 pp. Separate supplements, hardness and tensile test tables, 32 + 68 pp.
11. H. Mayer-Kaup, editor, Anleitungen für die chemischen Laboratoriumspraxis. Springer, 1952-62. v.1. W. Seith, K. Ruthardt and W. Rollwagen, Chemische Spektralanalyse, ed. 5; 162 pp. v. 2, G. Kortum, Kolorimetrie, Photometrie und Spektrometrie, ed. 4, 464 pp. v. 3, no data. v. 4, J. Heyrovsky, Polarographischen Praktikum, ed. 2, 1960; 116 pp. v. 5, W. Otting, Raman-Effekt und seine analytische Anwendung, 161 pp. v. 6, H. M. Rauen and W. Stamm, Gegenstromverteilung, 81 pp. v. 7, G. Gerbach, Mikrochemisches Praktikum, 123 pp. v. 8, K. Sagel, Tabellen zur Röntgenstrukturanalyse, 204 pp. v. 9, K. Sagel, Tabellen zur Röntgen Emissions- und Absorptionsanalyse, 135 pp. v. 10, E. Bayer, Gaschromatographie, 163 pp. (translated as Gas Chromatographie, Van Nostrand, 1961; 240 pp.).

2.3:3300 (Cont.)

12. Folke K. G. Odquist and J. Hult, Kriechfestigkeit metallischer Werkstoffe. Springer, 1962; 303 pp.

2.3:3400 Medical Instrumentation; Biophysics. (A). Surgical instruments, in the classic sense, are not the objects of attention here. Diagnostic and clinical medicine now utilize electricity, magnetism, electronics, ultrasonics and other principles in instrumental research and treatment.

1. John S. Handloser, Health Physics Instrumentation. Pergamon, 1959; 182 pp.
2. Encyclopedia of Instrumentation for Industrial Hygiene. Michigan, 1956; 1243 pp. Sections: I. Sampling and Analyzing Air. II. Laboratory Instruments. III. Atmospheric Pollution and Meteorology. IV. Air Velocity; Metering Air. V. Sound and Vibration. VI. Ionizing Radiation. VII. Ultraviolet, Visible and Infrared Energy.
3. Otto Glasser, editor, Medical Physics. Year Book. v.I, 1944, 1744 pp. v. II, 1950, 1227 pp.; v. III, 1960, 754 pp. (Much attention to instrumentation).
4. Jan Nyboer, Electrical Impedance Plethysmography: Electrical Resistive Measure of Blood Pulse Volume, Peripheral and Central Blood Flow. Thomas, 1959; 243 pp.
5. Ralph W. Stacy, Biological and Medical Electronics. McGraw-Hill, 1960, 308 pp.
6. Lawrence J. Fogel, Biotechnology: Concepts and Applications. (Man: machine relations and system design). Prentice-Hall, 1963; 826 pp.
7. Mary A. B. Brazier, editor. Computer Techniques in EEG Analysis. Conference, UCLA, 1960. Elsevier, 1961; 98 pp.
8. Ralph W. Stacy, Biological and Medical Electronics. McGraw-Hill, 1960; 308 pp.
9. J. V. Basmajian, Muscles Alive: Their Functions Revealed by Electromyography. Williams, 1962; 267 pp.
10. I. C. Whitfield, Introduction to Electronics for Physiological Workers. Macmillan, Ed. 2, 1959; 263 pp.

2.3:3400(A) (Cont.)

11. Eugene Ackerman, Biophysical Science. Prentice-Hall, 1962; 626 pp.  
Of 31 chapters 6 are on "specialized instrumentation".
12. Chas. Weyl and S. R. Warren, Jr., Radiologic Physics. Thomas. Ed. 2, 1951; 491 pp.
13. Geo. A. Boyd, Autoradiography in Biology and Medicine. Academic Press, 1955; 399 pp.
14. Donald A. Smith, Medical Electronics Equipment Handbook. Sams, 1962; 256 pp.
15. Edw. J. Bukstein, Medical Electronics. Ungar, 1959; 168 pp.
16. Richard B. Setlow and Ernest C. Pollard, Molecular Biophysics. Addison, 1962; 545 pp.
17. International Conference (1961) on Medical Electronics: Digest. Princeton, 1961; 288 pp. (Follows Proceedings of the First Congress, 1958).
18. Russell H. Morgan and K. E. Corrigan, editors, Handbook of Radiology. Yearbook, 1955; 518 pp.
19. W. W. Grings, Laboratory Instrumentation in Psychology. Palo Alto, 1954; 282 pp.
20. Ed. Massie and Thos. J. Walsh, Clinical Vectorcardiography and Electrocardiography. Year Book. Ed. 4, 1960; 592 pp.
21. Sidney H. Licht, Electrodiagnosis and Electromyography. New Haven. Ed. 2, 1961; 470 pp.

2.3:3400 Medical Instrumentation; Biophysics. (B).

1. P.E.K. Donaldson, Electronic Apparatus for Biological Research. Butterworth, 1958; 718 pp.
2. Johanna M. Van Went, Ultrasonic and Ultrashort Waves in Medicine. Elsevier, 1954; 384 pp.
3. Goodwin M. Breinin, Electrophysiology of Extraocular Muscle, With Special Reference to Electromyography. Toronto, 1962; 148 pp.
4. Alfred Nightingale, Physics and Electronics in Physical Medicine, Bell, 1959; 292 pp.



2.3:3400 Medical Instrumentation; Biophysics. (C).

1. Fritz Löwe, Optische Messungen des Chemikers und des Mediziners. Steinkopff. Ed. 6, 1954; 352 pp.; bibliography.
2. Max Holzmänn, Klinische Elektrokardiographie. Thieme. Ed. 4, 1961; 889 pp.

2.3:3400 Medical Instrumentation; Biophysics. (D).

1. Jerzy Dobrski, Aparaty elektromedyczne. Warsaw, 1956; 257 pp.
2. Mikhail N. Livanov, Elektroentsefaloskopiya. Moscow, 1959; 106 pp.
3. Miroslav Brezina and P. Zuman, Polarografie v lekarstvi, biochemii a farmacii. Prague, 1952; 536 pp. Translated and revised by S. Wawzonek as Polarography in Medicine, Biochemistry and Pharmacy. Wiley, 1958; 862 pp.; bibliography; also by Helga Bazantova as Polarographie in der Medizin, Biochemie und Pharmazie, Leipzig, 1956; 800 pp.
4. Vladimir V. Orlov, Pletizmografiya: metody i primeneniye v eksperimental'nikh i klinicheskikh issledovaniyakh. Nauk, 1961; 251 pp.
5. Aksel' I. Berg, Elektronika v meditsina. All-Union Conference on Applications of Electronics in Medicine and Biology, Moscow, 1960; 391 pp.
6. Rostislav M. Meshcherskii, Metodika mikroelektrodnogo issledovaniya. Moscow, 1960; 191 pp.
7. Manuel Besoain-Santander, Electrocardiografia elemental. Santiago Bello, 1959; 460 pp.
8. Simeon Karadimov, Elektromeditsinski aparati. Tekhnika, Sofia, 1960; 214 pp.

2.3:3500 Metrology and Calibration. Metrology here simply means measuring (methods, devices, units). Entries are mainly generalities; measurement in some aspect runs all through this Guide. Calibration is interpreted in its customary meaning.

1. Paul Leinweber, G. Berndt and O. Kienzle, editors, Taschenbuch der Längenmesstechnik für Konstruktion, Werkstatt, Messraum und Kontrolle. Springer, 1954; 806 pp.
2. Philip Rush and John O'Keefe, Weights and Measures. Methuen, 1962; 96 pp.

2.3:3500 (Cont.)

3. John Guild, Diffraction Gratings as Measuring Scales: Practical Guide to the Metrological Use of Moiré Fringes. Oxford, 1960; 211 pp.
4. Poverochnye skhemi. Standards, Instruments and Metrology Commission, Council of Ministers, USSR. Moscow, 1960; 69 pp.
5. C. West Churchman and Philburn Ratvosh, editors, Measurement: Definitions and Theories. Wiley, 1959; 274 pp.
6. Thos. G. Beckwith and N. L. Buck, Mechanical Measurements. Addison, 1961; 559 pp.
7. Units of Weight and Measure: Definitions and Tables of Equivalents. NBS Misc. Pub. 233, 1960; 62 pp.
8. Milton H. Aronson, editor, Weight Measurement and Control. Instruments, 1961.
9. Ralph W. Smith, Testing of Measuring Equipment. Manual for Weights and Measures Officials. NBS Handbook 45, 1951; 205 pp.
10. J. Burton, Pratique de la mesure et du controle dans l'industrie. Dunod. I. Pressions. Niveaux. Debits, 1958; 400 pp. II. Temperatures. Humidités. Densités, 1959; 392 pp.
11. Precision Measurements and Calibration. NBS Handbook 77, 1961; 3 v. 840 + 965 + 1036 pp.
12. P. Debraine, Unites de mesure des grandeurs physiques. Dunod. Ed. 2, 1961; 186 pp.
13. Maurice D. Papin and J. Vallot, Metrologie generale. Dunod. Ed. 4, 1960. I. Generalites, 223 pp. II. Grandeurs et unites, 204 pp. Metrologie appliquee. Ed. 3, 1955; 365 pp.
14. Kenneth J. Hume, Engineering Metrology. Macdonald, Ed. 2, 1963; 358 pp.; bibliography.
15. Kenneth J. Hume and G. H. Sharp, Practical Metrology. Macdonald, 1953-62; 4 v.

2.3:3600 Testing Materials

1. Arnold E. Lever and Jack Rhys, Properties and Testing of Plastic Materials. Temple. Ed. 2, 1962; 336 pp.
2. H. A. Gardner and G. G. Sward, Paint Testing Manual. Ed. 12, 1962.
- 2a. Erich Siebel, editor, Handbuch der Werkstoffprüfung. Springer. Ed. 2 in 5 v. I. Prüf- und Messeinrichtungen, Ed. 2, 1958; 890 pp.

- II. Prüfung der metallischen Werkstoffen, Ed. 2, 1955; 754 pp.
  - III. Prüfung nichtmetallischer Baustoffe, Ed. 2, 1957; 1026 pp.
  - IV. Papier- und Zellstoffprüfung, Ed. 3 in preparation (1964).
  - V. Prüfung der Textilien, Ed. 1 and 2, 1960; 1440 pp.
3. Rudolf Nitzsche and K. W. Wolf, editors, Kunststoffe. Springer, 1961-62.  
2 v. I. Struktur und physikalisches Verhalten, 1962; 974 pp.  
II. Praktische Kunststoffprüfung, 1961; 656 pp.
  4. Symposium on Stress-Strain-Time-Temperature Relationships in Materials.  
ASTM Special Tech. Pub. 325, 1962; 129 pp.
  5. Herbert Abraham, Asphalts and Allied Substances: Their Occurrence  
(v. 1, 1960), Modes of Production (v. 2 and 3, 1961-62), Uses in the Arts (v. 2 and 3), and Methods of Testing. v. 4 (1962), Methods of Testing: Raw-Bituminous Materials, 435 pp; v. 5, (1963) Methods of Testing: Fabricated Bituminous Products, 432 pp.
  6. Jas. F. Young, Materials and Processes. Wiley, Ed. 2, 1954; 1074 pp.
  7. International Symposium on Plastics Testing and Standardization. ASTM  
Special Tech. Pub. 247, 1959; 272 pp.
  8. K. Wellinger and E. Krägeloh, editors, Werkstoffe und Werkstoffprüfung.  
(v. 3 in Lueger's Lexikon der Technik, Ed. 4). Springer 1961; 816 pp.
  9. H. E. Davis, G. E. Troxell and C. T. Wiskocil, Testing and Inspection of Engineering Materials. McGraw-Hill. Ed. 2, 1955; 431 pp. bibliography.
  10. Georg Reicherter, editor, Härteprüfungen nach Brinell, Rockwell, Vickers.  
Springer. Ed. 2, 1959; 216 pp.
  11. A.C.H. Deitz and F.R. Eirich, High Speed Testing. Symposium, 1958. Wiley.  
3 v. I, 1960, 120 pp.; II, 1961, 78 pp.; III, 1962, 104 pp.
  12. Proceedings of the Japan Congress on Testing Materials. JSTM. I (1957)  
179 + 21 + 147 pp. II (1958), 244 + 87 pp. III (1959), 163 + 100 pp.  
IV (1960), 151 + 73 pp. VI (1962), 156 pp.
  13. Richard Glocker, Materialprüfung mit Röntgenstrahlen, unter besonderer Berücksichtigung der Röntgenmetallkunde. Springer. Ed. 4, 1958; 530 pp.
  14. Robt. C. McMaster, editor, Nondestructive Testing Handbook. Ronald 1961;  
1850 pp. in 2 vol.
  15. C. Massonnet, Resistance des matériaux. Dunod, 1962; 520 pp.
  16. J. Krautkrämer and H. Krautkrämer, Werkstoffprüfung mit Ultraschall.  
Springer, 1961; 501 pp.

2.3:3700 Standards; Specifications. Commodity standards, property standards and tolerances, and procedure standards are so numerous that the literature of standards has great numbers of separates. Entries here are mainly guides to aid in locating individual items or publications. Serials issued by standardizing societies or agencies are also important; see 2.9:Pl550.

1. DIN Taschenbuch. 19. Materialprüfnormen für metallische Werkstoffe. DNA. Ed. 3, 1961; 294 pp.
2. Specifications, Tolerances and Regulations for Commercial Weighing and Measuring Devices. NBS Handbook H44, Ed. 2, 1955 (Corrected through 1961), 1962; 173 pp.
3. Paul A. Cooley, Ann E. Rapuzzi and A. S. McAllister, National Directory of Commodity Specifications. NBS Mics. Pub. M178, 1945; 1311 pp. Supplement, 1947, 322 pp. Revision assigned to ASA.
4. M. Klein, Einführung in die DIN-Normen. DNA. Ed. 4, 1961; 437 pp.
5. Directory of Technical Specifications: Electronic Test Instruments. TI, 1962, in 6 v.: 1, 2. Sources. 3,4. Modifiers. 5,6. Scalars.

## 2.4 DISSERTATION GUIDES

Most nations, and many universities individually, publish lists of their academic dissertations. Only a few of those most likely to be useful are listed here; many occur in national bibliographies.

1. Dissertation Abstracts. Microfilms. Monthly, 1938--. (Title was Microfilm Abstracts, 1938-51).
2. Canadian Theses: List of Theses Accepted by Canadian Universities. Ottawa. Annual, 1952--.
3. Master's Theses and Doctoral Dissertations in the Pure and Applied Sciences Accepted by Colleges and Universities of the U. S. Purdue, Annual, 1957--. About 6000 entries per year.
4. Abstracts of Theses. MIT. Annual, 1951--.
5. Jahresverzeichnis der deutschen Hochschulschriften. Leipzig. Annual, 1885--.
6. Index to Theses Accepted for Higher Degrees in the Universities of Great Britain and Ireland. ASLIB. Annual, 1954--.
7. Bibliografiya disertatsii. Doktorskie disertatsii. Annual. Moscow. (Medicine and pharmacy not included).



## 2.4 (Cont.)

7. Doctoral Dissertations Accepted by American Universities. Wilson. Annual, 1933--. (Preceded by Doctorates Conferred in the Sciences by American Universities. NAS-NRC, 1919-32).

## 2.5 DIRECTORIES; BUYERS' GUIDES; EXHIBIT GUIDES

Entries in this section are selected solely for probable reference utility. They do not imply or intend any endorsement of the publications or of any groups or interests represented therein.

### 2.5:D100 Directories. (A).

1. MacRae's Bluebook. Chicago. Annual, 1894--.
2. Instruments and Control Systems: Buyers' Guide. Instruments. Annual, 1944--. Absorbed Instruments Index (biennial, 1940-56).
3. Mechanical Catalog With Directory of Manufacturers of Industrial Equipment, Materials and Supplies. ASME, Annual, 1911--.
4. Heating, Ventilating and Air Conditioning Guide. ASHAE, 1959; 768 + 476 pp.
5. Missile Market and Product Guide. American Aviation. Annual, 1955--.
6. Design News Reference Manual. Detroit. Annual, 1953--.
7. Research Equipment Exhibit. NIH. Annual, 1951--.
8. Aero/Space Engineering Catalog. IAS. Annual, 1945--.
9. Who's Who in Electronics. Cleveland. Annual, 1956--.
10. Electronic Industries Directory. Chilton. Annual, 1943--; All Reference issue added, 1958--.
11. Thomas' Register of Manufacturers. Annual. 1911--(Ed. 53, 1963). I, II, III, Products. IV. Manufacturers' Names; Associations; Periodicals. V. Index. Thomas Micro-Catalogs. Ed. 1, 1963; 33 pp. Lists over 2000 manufacturers whose catalogs are available to subscribers on microfilm.
12. Chemical Engineering Catalog. Reinhold. Annual, 1916--.
13. Radio-Electronic Master. United Catalog. Annual, 1937-- (formerly Radio's Master).

2.5:D100(A) (Cont.)

14. Control Applications Guide. Reinhold. Annual supplement to Automatic Control.
15. Radiation Instrument Catalog. AEC. Irregular, 1949--.
16. Electronic Buyers' Guide. McGraw-Hill, Annual supplement to Electronics, 1941--.
17. Microwave Engineers' Handbook and Buyers' Guide. Horizon. Annual, 1961--.
18. Instrument-Automation Conference and Exhibit. ISA. Annual, 1946--.
19. International Buyers' Guide and Reference Data Manual: Supplement to Nucleonics. McGraw-Hill. Annual, 1943--.

2.5:D100 Directories. (B).

1. Canadian Trade Index.. CMA. Annual, 1900--.
2. Handbook of Scientific Instruments and Apparatus. PS. Annual, 1939--.
3. British Instruments and Buyers' Guide. United. Annual, 1959--.  
Merger of British Scientific Instruments with Instruments Directory and Buyers' Guide.
4. Engineer Buyers' Guide. Annual Supplement to Engineer (London).
5. British Radio and Electronic Components: Official Catalogue and Buyers' Guide. London, 1957; 318 pp.

2.5:D100 Directories. (C).

1. Handbuch der Maschinen-Industrie. VDMA. Irregular, 1937--.  
(Directory of West German machine tool manufacturers).
2. Deutsche Industriemesse: Amtlicher Messe-Katalog. DMA. Catalog for each exposition; exhibitors from about 60 trade associations covering broad instrumentation interests.
3. H. von Stutterheim, editor, Industrie der Messtechnik: Warenkatalog der Mess- und Prüfmittel. Darmstadt. Ed. 1, 1956; 704 pp.
4. H. Pietsch, editor, Interkama: Offizieller Ausstellungs-Katalog, Internationaler Kongress mit Ausstellung für Messtechnik und Automatik. Düsseldorf, 1957; 376 pp.

5. Achema Jahrbuch: Bericht über Stand und Entwicklung des chemischen Apparatewesens. Europäischer Katalog. Dechema. Irregular, 1920-37; no issues, 1938-49; triennial (issued in the middle year), 1950--; Achema XI, 1962-63-64. From 1957 in German, French English and Spanish. Lists research institutions, suppliers, trade names.
6. Exposition d'Instruments et Materiels Scientifiques. SFP. Annual, 1904--.
7. Guide des machines, appareils et outils. Geneva, 1951; 1388 pp. (in 5 languages).

## 2.6 GUIDES TO TECHNICAL LITERATURE AND INFORMATION SERVICES

Manuals of instruction as to sources and use of technical literature are entered here; so are lists of sources and information services.

There is some overlap with Section 2.7; in case of doubt, both sections and the subject index should be consulted.

### 2.6:G100 Guides: General.

1. Arthur D. Roberts, Introduction to Reference Books. LA. Ed. 3, 1956; 237 pp.
2. Douglas J. Foskett, Information Service. Crosby, 1958; 142 pp.
3. Directory of Continuing Numerical Data Projects. NAS-NRC Pub. 837, 1961.
4. Scientific Information Activities of the NAS-NRC. NRC Pub. No. 1031, 1962; 49 pp.
5. Constance M. Winchell, editor, Guide to Reference Books. ALA. Ed. 7, 1951; 645 pp.; supplements 1950-52; 1953-55; 1956-58.
6. Carter Alexander and Arvid J. Burke, How to Locate Educational Information and Data. Columbia. Ed. 4, 1958; 419 pp.
7. Specialized Science Information Services in the U. S. BMI for NSF. NSF No. 61-68, 1961; 528 pp. In 25 numbered sections, including: 1. Aerospace. 4. Astronomy. 9. Earth Sciences. 10. Electronics and Electrical Engineering. 18. Mathematics. 19. Mechanical Engineering. 20. Medical Sciences and Equipment. 21. General Science and Technology. Lists 427 organizations (Government, academic and private) offering some type of information service.

8. Bibliographie des sciences et de l'industrie: Revue de librairie et d'information. Dunod. Monthly, 1903--. I. Livres francais et etrangers. II. Livres etrangers en cours de traduction. III. Revues francaises. (Numerous European publishers issue similar serial lists).
9. Elizabeth G. Bowerman, editor. Union List of Technical Periodicals in 200 Libraries of the Science and Technology Group. SLA. Ed. 3, 1947; 285 pp.
10. Scientific and Technical Serial Publications: U. S., 1950-53, 238 pp.; USSR, 1945-53, 118 pp. LC, 1954.
11. Robt. L. Collison, Library Assistance to Readers. Crosby. Ed. 3, 1960; 131 pp.
12. Science, Government and Information: Responsibilities of the Technical Community and the Government in the Transfer of Information. PSAC, 1963; 52 pp.
13. Laurence F. Schmeckebier and Roy B. Eastin, Government Publications and Their Use. Washington, 1961; 476 pp.

2.6:G200 Guides: Defined Subject Areas.

1. J. Edwin Holmstrom, Records and Research in Engineering and Industrial Science: Guide to Sources, Processing and Storekeeping of Technical Knowledge, With a Chapter on Translating. Chapman. Ed. 2, 1947; 366 pp.
2. Naming and Indexing of Chemical Compounds. Introduction to the Subject Index, Chemical Abstracts, v. 56 (1962). ACS, reprint issued 1962; 98 pp.
3. Sylvia Goldman, Guide to the Literature of Engineering, Mathematics and the Physical Sciences. APL. TG 334-1, 1959; 52 pp.
4. Nathan G. Parke III, Guide to the Literature of Mathematics and Physics Including Related Works on Engineering Science. Ed. 2, 1958; 436 pp. (Supplement by Sylvia Goldman, APL TG 334-1, 1959).
5. Evan J. Crane, Austin M. Patterson and Eleanor B. Marr, Guide to the Literature of Chemistry. Wiley, Ed. 2, 1957; 397 pp.
6. M. Guy Mellon, Chemical Publications: Their Nature and Use. McGraw-Hill, Ed. 3, 1958; 327 pp. (Ed. 4 in preparation, 1963).



## 2.6:G200 (Cont.)

7. Blanche H. Dalton, Sources of Engineering Information. California, 1948; 198 pp.
8. Jos. Pearlstein, Searching the Literature for Transducer Information. I. Guide to the Literature. OTS, 1959; 57 pp. II. Survey of the Field. DOFL Rept. TR-898, 1960, and supplement, DOFL Rept. TR-996, 1961; 46 pp. HDL.

## 2.6:G300 Guides: Defined Sources.

1. Reginald R. Hawkins, editor, Scientific, Medical and Technical Books Published in the U. S., 1930-1944: Selected List of Titles in Print, With Annotations. NRC. Ed. 2, 1958, 1491 pp.
2. Directory of Engineering Data Sources: Guide to American Literature in Engineering and Related Sciences. SRI, 1948; 63 pp.
3. Soviet Science and Technology: Bibliography of the State of the Art, 1955-61. LC, 1962.
4. British Scientific and Technical Books: Select List of Recommended Books Published 1953-52. Aslib, 1956; 364 pp. Supplement, 1953-57. Aslib, 1960; 251 pp.
5. Journals in Science and Technology Published in Japan and Mainland China: A Selected List. LC, 1961; 47 pp.
6. Guide to the World's Abstracting and Indexing Services in Science and Technology. NFSAIS, Rept. 102, 1963; 183 pp., 1855 entries.
7. Guide to U. S. Indexing and Abstracting Services in Science and Technology. NFSAIS Rept. No. 101, 1960 (largely superseded by NFSAIS Rept. 102).

## 2.7 INDEXES OF TECHNICAL LITERATURE

This section has some overlap with 2.6:G300; in case of doubt, consult both sections and the subject index.

## 2.7:1100 Indexes: General.

1. Index Bibliographicus: Science and Technology. FID. Ed. 4, 1959. (Ed. 1, 1923 and Ed. 2, 1931, were issued by the League of Nations; Ed. 3, Part 1 (Science and Technology), 1951, by UNESCO).
2. Cumulative Book Index. Wilson. Monthly, 1933--; cumulations at intervals.

2.7:I100 (Cont.)

3. Publishers' Trade List Annual: Book Catalogs of U. S. publishers. Bowker. 3 v.
4. Wm. A. Smith and F. L. Kent, editors, World List of Scientific Periodicals Published in the Years 1900-1950. Academic Press. Ed. 3, 1952; 1058 pp.
5. Air University Periodical Index. Air Univ. Quarterly, 1949--. English language literature, about 18,000 entries per year; for official use (unclassified).
6. Oswald T. Zimmerman and Irvin Lavine, Handbook of Material Trade Names. IRS, 1953; 794 pp. Supplements: 1, 1957; 378 pp.; 2, 1958; 356 pp.; 3, 1960; 400 pp.
7. Applied Science and Technology Index. Wilson. Monthly, 1960--; continues Industrial Arts Index, 1913-59; annual and biennial cumulations; around 80,000 entries per year.
8. Repertorium Technicum, 1931--. NIDR. (International bibliography).
9. Eileen C. Graves, editor, Ulrich's Periodicals Directory: A Classified Guide. Bowker, Ed. 10, 1963.
10. New Serial Titles: Union List of Serials Commencing Publication after 31 Dec. 49. LC. I, 1950-55; II, 1956-60; 5-year cumulations planned, 1961--.

2.7:I200 Indexes: Defined Subject Areas.

1. Chemical Titles. ACS. Semimonthly, 1961--. About 75,000 entries per year.
2. Index of Monographs. Bell Labs., 1934--. v.1(1-750); v. 2(751-1199); other issues at intervals in Bell System Technical Journal, to 4289 (July 1963).
3. Bibliography of Agriculture. USDA Library. Monthly, 1942--. Over 100,000 entries per year.
4. Current Contents of Space, Electronic and Physical Sciences. Philadelphia. Weekly, 1961--; tables of contents of about 100 periodicals.
5. Consolidated Index of Selected Property Values: Physical Chemistry and Thermodynamics. NAS-NRC Pub. 976, 1962.
6. British Technology Index. IA. Monthly, 1962--; annual cumulations.

## 2.7: I300 Indexes: Defined Sources.

1. Soviet Science and Technology: Bibliography of the State of the Art, 1955-61. LC, 1962.
2. Polish Scientific Periodicals: Current Contents With Author Directory. Warsaw. 8-10 issues per year, 1961--.
3. Technical Translations. OTS. Semimonthly, 1959--. Replaced Bibliography of Translations from Russian Scientific and Technical Literature (LC, 1953-56) and Translation Monthly (SLA, 1955-59).
4. Monthly Index of Russian Accessions. LC, 1948--.
5. U. S. Government Research Reports. OTS. Monthly, 1946--. (Title was Bibliography of Technical Reports, 1946-53).
6. East European Accessions List. LC, Monthly, 1952--.
7. Zasshi Kiji Sakuin: Shizen Kagaku-Hen. Japanese Periodical Index: Natural Science. Quarterly, 1950--; about 50,000 entries per year from Japanese literature.
8. Winifred Gregory, editor, Union List of Serials in Libraries of the U. S. and Canada. Wilson, Ed. 2, 1943; 3065 pp.; supplements at irregular intervals.
9. Anne M. Boyd and R. E. Rips, editors, U. S. Government Publications. Wilson. Ed. 3, 1950; 627 pp.
10. NLL Translations Bulletin. NLL. Monthly, 1959-- (continues Translated Contents Lists of Russian Periodicals, DSIR, 1954-58).
11. Publications of NBS, 1901-47. NBS Circular 460; 1948; 375 pp. Supplements: 1947-57; 1958; 373 pp.; 1957-60, Misc. Pub. 240, 1961; 391 pp.; 1960-62, 29 pp.

## 2.8 PATENTS

The paucity of patent citations in reference lists of scientific papers and technical reports surprises patent attorneys. Profound discussions of theory are common in patent specifications. An inventor of a half century ago even patented two pet theological doctrines under the guise of educational devices. To encourage more attention to patents as primary sources of published information, they are given extra emphasis here.

2.8Pa 100: Patents: Official Gazettes and Abridgments.

1. Industriële Eigendom. The Hague. Monthly, 1912--. Bijblad bij de Industriële Eigendom. Monthly, 1933--. (Patent Office rulings and announcements).
2. Dansk Patenttidende. Copenhagen. Weekly, 1894--. Abridgments.
3. Official Gazette of the USPO. Weekly, 1872--. Mechanical, Electrical and Chemical sections.
4. Canadian Patent Office Record. Ottawa. Weekly, 1873--; claims and drawings. (Canadian patents were not printed until 1948).
5. Official Journal (Patents). BPO. Weekly, 1854--. (Title was Commissioner of Patents Journal, 1854-83; Illustrated Official Journal, 1884-1931). See also Abridgments.
6. Bulletin officiel de la propriété industrielle. Paris. Weekly, 1884--. (See also Abreges descriptifs).
7. Patent Office Journal. Pretoria, South Africa. Weekly, 1948--.
8. Auszüge aus den Patentschriften. DPA. Weekly, 1877--.
9. Schweizerische Patent-, Muster- und Modellblatt. Bern. Semimonthly, 1888--.
10. Abridgments of Specifications. BPO. Irregular, 1617--. (Title sometimes Illustrated Abridgments).
11. Tokkyo Koho. Japanese Patent Office. Irregular (every 50 patents), 1885--. Abridgments; in Japanese.
12. Abréges descriptifs des brevets d'invention. Paris. Weekly, 1960--. (Was a section in Bulletin officiel, 1958-59). About 40,000 French patent abridgments per year.
13. Svensk Tidsskrift för Industriellt Rättskydd. Stockholm. Biweekly, 1886--. (Appeared only as a supplement in Industriell Teknik, 1879-1885; thereafter published in both forms). Register till Patent (index). Annual, 1885--.
14. Australian Official Journal of Patents, Trade Marks and Designs. Canberra. Weekly, 1904--.
15. Bollettino dei brevetti: Invenzioni industriali; modelli industriale; marchi d'impresa. Rome. Monthly, 1901--.



## 2.8: Pa100 (Cont.)

16. Auszüge aus den Patentanmeldungen. DPA. Weekly, 1955--; over 100,000 abridgments per year of German patent applications. Beginning with Ger. P. 1,000,001 the Auslegeschriften (applications open to public opposition) carry a serial number which will also be carried by the final patent if granted. (Auszüge aus den Patentschriften began in 1880.)
17. Patentblatt: Behanntmachungen auf Grund des Patentgesetzes und des Gebrauchsmustergesetzes. DPA. Weekly, 1881--; See also Auszüge.
18. Recueil des brevets d'invention. Brussels. Monthly, 1954--.
19. Österreichisches Patentblatt. Vienna. Monthly, 1899--.
20. Byulleten izobretenii. Moscow. Semimonthly, 1924--. Translated as USSR Official Bulletin of Patents. Derwent. Semimonthly, 1961--, and as USSR Patents and Inventions. Pergamon. Monthly, 1959--.
21. Norsk Tidende for det Industrielle Rettsvern. Avdeling I. Patenter. Oslo. Weekly, 1886--.
22. Erfindungs- und Vorschlagswesen. Amt für Erfindungs- und Patentwesen, DDR. Monthly, 1952--, with Patentkartei (abridgments on cards).
23. Gaceta de la propiedad industrial. Mexico, D. F. Monthly, 1926--.

## 2.8:Pa200 Patents: Official Searching Aids.

1. Key to the Classifications of the Patent Specifications of France, Germany, Austria, Netherlands, Norway, Denmark, Sweden and Switzerland in the Library of the Patent Office. BPO. Ed. 3, 1915; 190 pp.
2. Manual of Classification. USPO. Looseleaf; current amendments by subscription.
3. Patent Abstract Series. OTS. Irregular (2 or 3 year intervals), 1953--. Abstracts of Government-owned patents offered for license, about 10,000 in all; 7 series, including one for instrumentation and one for electricity and electronics.
4. Gruppeneinteilung der Patentklassen. DPA. Ed. 5, 1951; 398 pp. Ed. 6, 1949; 498 pp. Ed. 7, 1958, looseleaf. Translation: Manual of Patent Classification, German Patent Office. POSL and OTS, 1963. (The subject indexes, not the text, of the 1910 and 1914 editions were translated by N. E. Kuhlmann for POSL, 1911 and 1919).

## 2.8:Pa200 (Cont.)

5. Ukazatel' klassov avtorskykh svidetel'stv i patentov, vydavaemykh v SSSR s pozdrozdeleniem ikh na podklassy, grupy i podgruppy. Council of Ministers, Moscow, 1962; 824 pp. (Soviet classification manual).
6. Abridgment Class, Classification and Index Key. BPO, London, 1937; 40 Sections in 2 v. Supplements at irregular intervals.
7. Patentliste: Liste des Brevets: Lista dei Brevetti. Swiss Patent Office, Bern. Semimonthly, 1889--; reprinted from Schweizerisches Handelsamtblatt.
8. Indexes of Patents of Invention. BPO. 1854-1857. Subject Matter Index (Made From Titles Only), March 2, 1617 to October 1, 1852; 970 pp (1851). Alphabetical Index of Patentees, 1617-1852; 647 pp. (1854). Chronological Index, 1617-1852; 1554 pp (1854). Reference Index, 1617-1852; 681 + 91 pp. (1855). Subject Matter Index, (annual), 1853 to date. Fifty years Subject Index, 1861-1910, in 146 Sections by classes, in 4 volumes, 1915. Fifty years Subject Index, 1911-1960, for sale by classes in 271 sections.
9. Manual of Classification, French Patent Office. POSL. Translation by N. E. Kuhlmann, in manuscript form.
10. Izobratel'stvo v SSSR. Council of Ministers, Moscow. Monthly, 1956--. (Reports of inventions; technical articles).
11. Internationale Patentklassifikation: Klassen und Unterklassen, Heymann, 1956; 44 pp. (In German, English and French).

## 2.8:Pa300 Patents: Unofficial Searching Aids.

1. Japan Patent News. Interpas. Monthly, 1960--; about 30,000 Japanese patent citations per year, in 7 separate sections.
2. Index of Patents: 1790-1960. Bowman. 1963. Chemical, 6 v. Electrical, 5 v. Mechanical, 5 v. From 1961 each group will be indexed in the National Catalog of Patents (2.8:Pa200), with the grouping assigned by the U. S. Official Gazette. Include a guide to the classification system, with subclass, subject and number indexes, in each group.
3. National Catalog of Patents. Bowman. Annual, 1961--. Follows the U.S. Official Gazette grouping; 2 or 3 v. per year in each group, some with separate volumes of cross-references from related subclasses to the assigned subclasses.

2.8:Pa300 (Cont.)

4. Erfinder- und Warenschutz im In- und Ausland. DDR, 1956-57. I. E. Arlt and H. Erasmus, Deutschland mit Anhang: Internationale Vorträge, 472 pp. II. H. Erasmus, USSR und Länder der Volksdemokratie, 468 pp. III. Übriges Ausland, 994 + 912 + 878 pp.
5. Russian Patent Abstracts: Chemistry and Chemical Engineering. TI, Monthly, 1960--. (Translated abridgments).
6. Bulletin analytique des brevets francais. AUDD. Annual, 1944--.
7. Uniterm Electronics Patents Service. II. Quarterly, 1955--; cites about 5000 patents per year. Uniterm Index of U.S.Chemical Patents. Bimonthly, 1950--. Index (1950-62) on magnetic tape, 1963.
8. Belgian Patent Reports. Derwent. Biweekly, 1961--. Chemical Patent abstracts.
9. How to Obtain Information from U. S. Patents. USPO, 1962; 21 pp.
10. British Patents Abstracts. Derwent. Biweekly, 1954--; about 23,000 abstracts per year. (Preceded by Commonwealth Patent Reports).
11. Eduard Reimer, Europäisierung des Patentrechtes. Heymann, 1956; 305 pp. Europarat Committee report (1951-55) on plans for a common European patent law.
12. French Patents Report. Derwent. Weekly, 1961--. (South African and Indian patents abstracted in some issues).
13. Japanese Patent Abstracts and Japanese Patent Report (new name in 1962). Interpas and Derwent, 1961--. Weekly; translations of abridgments (native Japanese inventions) or of title data (foreign inventions).
14. German Patents Abstracts. Derwent. Weekly, 1956--; about 5600 abstracts per year.
15. Interpas Monthly Patent Data Bulletins. Monthly, 1957--, in 26 separate sections (IPC classes); about 320,000 citations per year of patents from 20 nations.

2.8:Pa400 Patents: Translations.

1. Subject Matter Index of Patents for Inventions (Brevets d'Invention) Granted in France from 1791 to 1876 inclusive. POSL, 1883; 934 pp. (Manuscript copy).

## 2.8:Pa400 (Cont.)

2. Soviet Inventions Illustrated. Derwent. Monthly, 1962--; around 9000 abstracts (with drawings) per year of Soviet patents. Sections: Chemical; Electrical; Mechanical and General. (Former title: Russian Patent Report).

## 2.9 PERIODICALS AND SERIALS.

Discontinued titles are omitted unless they have special reference utility. Some series of monographs are entered in Section 2.3; the definition of "Serials" is somewhat elastic.

### 2.9:Pl00 Instrumentation: General. (A).

1. Lab World. Los Angeles. Monthly, 1950--. Labstracts: Annual Source-book of Laboratory Technic, 1950--.
2. Instruments and Control Systems. Instruments. Monthly; 1928--.(Earlier titles: Instruments and Instruments and Automation.) Instruments Index is one issue in alternate years.
3. SPIE Journal. Bimonthly, 1962--.
4. Design News. Englewood, Colorado. Bimonthly, 1946--.
5. Review of Scientific Instruments. AIP. Monthly, 1930--.
6. ISA Journal. Monthly, 1946--. (As a section in Instruments, 1946-53). ISA Proceedings: Annual, 1947--. ISA Transactions, Quarterly, 1962--. Biomedical Sciences Instrumentation. Annual, 1963--.
7. Research Development. Chicago. Monthly, 1950--. Title was Industrial Laboratories, 1950-59.

### 2.9:Pl00 Instrumentation: General. (B).

1. Journal of Scientific Instruments. IP. Monthly, 1923--.
2. Laboratory Practice. United. Monthly, 1952--. (Abstract section, British patents).
3. Instrument Practice: Control Systems; Electronics; Automation. United. Monthly, 1947--.
4. Transactions of the SIT. Quarterly, 1949--. (Quarterly Bulletin and Review included).
- 4a. Micronics. International Fine Technics Association. Quarterly, 1964--.



2.9:Pl00(B) (Cont.)

5. Australian Journal of Instrument Technology. SITA. Quarterly, 1945--.
6. R & D Research and Development for Industry.. Heywood, 1961--.
7. Instrument Engineer. Luton (England). Semiannual, 1952--.
8. Metric Measures: Journal of Weights and Measures. Delhi. Bimonthly, 1958.
9. Instrument Review: Instruments, Electronics, Automation. London, 1954--.

2.9:Pl00 Instrumentation: General. (C).

1. Mesures et controle industriel. Paris, 1948--. Continues Mesures (1936-47). Lists French patents.
2. Askania Review. Berlin. Quarterly, 1937--. Also in German, French and Spanish editions.
3. Zeitschrift für Instrumentenkunde. Vieweg. Monthly, 1881-1944, 1947--. Supplement, Deutsche Mechaniker-Zeitung, 1898-1916, appeared separately, 1917-20.
4. Allgemeine Vermessungsnachrichten. Irregular, 1889--; supplement, Bildmessung und Luftbildwesen, 1926-38.
5. TIFO: Technische Informationen Feinmechanik und Optik: Berichte über neue Instrumente des In- und Auslandes. Cologne. Monthly, 1953--.
6. ATM: Archiv für technisches Messen. Monthly, 1931--. Archivteil, about 400 abstracts per year.
7. Instruments et Laboratoires: Revue bilinguale. Dunod. Quarterly, 1957--. Absorbed Laboratoires (1951-56) in 1957.
8. Bulletin annuel de la Societe suisse de chronometrie. Lausanne. Annual, 1959--.
9. Feingeräte Technik. Verlag Technik. Monthly, 1952--; bibliographies.
10. Fijntechiek. Nederlandse Vereniging voor Fijnmechanische Techniek. Utrecht.

2.9:Pl00 Instrumentation: General. (D).

1. Pribery i tekhnika eksperimenta. Moscow. Bimonthly, 1956--. Translated as Instruments and Experimental Techniques. ISA, 1958--.

2.9:Pl00(D) (Cont.)

2. Keisoku: Journal of the SIT(Japan). Monthly, 1951--.
3. Priborostroenie. Moscow. Monthly, 1956--. Translated as Instrument Construction, Taylor-F, 1959--.
4. Journal of the Society of Instrument and Control Engineers. Monthly. Tokyo, 1962--. (In Japanese, summaries and captions in English).

2.9:Pl30 Instrumentation: Special Topics.

1. Horological Journal. BHI. Monthly, 1858--.
2. Methods in Medical Research. Yearbook. Irregular, 1948--. Many instrumentation topics.
3. Bulletin annuel de la SSC et du Laboratoire Suisse de Recherches Horlogeres. Annual, 1932--.
4. Power Test Codes. ASME. Instruments and Apparatus supplements. Irregular 1931--.
5. American Journal of EEG Technology. Phoenix, Arizona, 1961--.
6. Tools of Biological Research. Blackwell. Annual, 1959--.
7. Annales francaises de la chronometrie. CNRS. Quarterly, 1931--. (Abstract section).
8. Military Systems Design. Instruments. Bimonthly, 1957--.
9. Bulletin of Gastrosocopy and Esophagoscopy. Washington. Monthly, 1959--. (Was Bulletin of the American Gastrosocopic Club, 1942-48, and Bulletin of the American Gastrosocopic Society, 1948-58).
10. Medical Electronics News. Instruments. Quarterly, 1961--.

2.9:Pl70 Company Journals. Some of these are house organs, selected for high concentration of technical matter; some are technical periodicals with a manufacturer's backing.

1. Marconi Instrumentation. Marconi Instruments, Ltd. Quarterly, 1955--.
2. Jenaer Jahrbuch. Zeiss. Annual, 1950--. Jena Review. Irregular, 1956--. Editions also in German, Russian and French. Jena Nachrichten. Irregular, 1954--.
3. Science Tools: LKB Instrument Journal. Irregular, 1954--.

2.9:Pl70 (Cont.)

4. DuMont Instrument Journal. Quarterly, 1957--.
5. Taylor Technology. Quarterly, 1948--.
6. Aminco Laboratory News. AI. Quarterly, 1945--.
7. Technique: Journal of Instrument Engineering. Muirhead & Co., Ltd.  
Quarterly, 1947--.
8. Engelhard Industries Technical Bulletin. Quarterly, 1960--.
9. Sperry Engineering Review. Quarterly, 1948--.
10. Instrumentation. M-H. Quarterly, 1943--.
11. Norelco Reporter. Philips. Quarterly, 1954--.

2.9:P200 Computers. Mathematical machines and data processing devices.

1. IBM Journal of Research and Development. Quarterly, 1957--.
2. Digital Computer Newsletter. ONR. Quarterly, 1950--.
3. Information and Control. Academic Press. Quarterly, 1957--.
4. Computers and Automation. Newtonville, Mass. Monthly, 1951--. Annual  
buyers' guide.
5. Operations Research. ORSA. Quarterly, 1953-- (formerly Journal of the  
ORSA).
6. Sigma: Tijdschrift voor industriele statistiek en kwaliteitsbeleid.  
Rotterdam. Bimonthly, 1956--.
7. Advances in Computers. NBS and Academic Press. Annual, 1960--.
8. Computer Design. Boston. Monthly, 1962--.
9. Technometrics: Journal of Statistics for the Physical, Chemical and  
Engineering Sciences. ASQC. Quarterly, 1959--.
10. ACM Communications. Monthly, 1958--. Computing Reviews. Bimonthly,  
1960--. Journal. Quarterly, 1954--.
11. Proceedings of the Joint Computer Conferences. IRE. About semiannual,  
1952--.
12. Computer Journal. BCS. Quarterly, 1958--.

2.9:P200 (Cont.)

13. MTW Mathematik. Technik. Wirtschaft: Zeitschrift für moderne Rechen-  
technik und Automation. Vienna. Quarterly, 1954--.
14. Datamation. Monthly, 1955--. Los Angeles. (Formerly Magazine of  
Datamation).
15. ICC Bulletin. Rome. Quarterly, 1962--. Supplement: Computer  
Laboratories Directory.
16. Elektronische Rechenanlagen. Munich. Bimonthly, 1959--. Beihefte,  
irregular, 1961--.

2.9:P250A Automation and Process Control.

1. Control Engineering. McGraw-Hill. Monthly, 1954--.
2. Automation. Penton. Monthly, 1954--.
3. Proceedings of the EIA Conference on Numerical Control Systems for Mach-  
ine Tools. EIA and Reinhold, Irregular, 1957--.
4. Proceedings of the EIA Conference on Automation Systems for Business  
and Industry. EIA and Reinhold. Irregular, 1958--.
5. Automation Express. IPI. 10 issues per year, 1958--; translations  
and abstracts from Russian, about 500 per year. (See also  
Electronics Express; Physics Express; Power Express).
6. Data Systems Engineering (new title, 1963, of Automatic Control). New  
York. Monthly, 1954--.
7. Automation Reports. Biweekly, 1963--. Commerce Clearing House, Chicago.

2.9:P250B Automation and Process Control.

1. Journal of Electronics and Control. London. Bimonthly, 1955--. Affil-  
iated with Philosophical Magazine.
2. Measurement and Control. London. Monthly, 1962--.
3. Automation in Industry. London. Monthly, 1954--. Supplement. Instru-  
ment Review. (Title was Instruments in Industry, 1954-57).

2.9:P250C Automation and Process Control.

1. Automazione e automatismi. Milan. Bimonthly, 1957--; abstract section;  
emphasis on textiles.



2.9:P250C (Cont.)

2. Kybernetik: Zeitschrift für Nachrichtenübertragerei, Nachrichtenverarbeitung, Steuerung und Regelung in Organismen und in Automaten. Springer. Irregular, 1963--.
3. Automatisme pratique: Regulation et automatique. Dunod. Bimonthly, 1962--.
4. Sprechsaal für Keramik, Glas, Email, Coburg. Semimonthly, 1868--.  
Supplement: AM + R: Angewandte Mess- und Regeltechnik, semimonthly, 1961--.
5. Automatisierung: Europäische Industrie-Zeitschrift für das gesamte Gebiet der Automatisierung. Hsidelberg. Monthly, 1956--. Special section, Angewandte Elektronik.
6. Regelungstechnische Praxis: Steuern, Regeln und Automatisieren in Betrieb. Munich. Quarterly, 1959--.
7. Automatisme a l'usine et au bureau. Dunod. About monthly, 1956--.
8. Regelungstechnik: Zeitschrift für Steuern, Regeln und Automatisieren. Munich. Monthly, 1953--. Bibliographies.
9. Automazione e strumentazione. Milan. Monthly, 1953--. (Formerly Misure e regolazione).
10. Kybernetik. Springer. About annual, 1963--.

2.9:P250D Automation and Process Control.

1. Jido Seigyo: Automatic Control. Univ. Tokyo. Bimonthly, 1955--. Summaries in English.
2. Pomiary Automatyka Kontrola. Warsaw. Monthly, 1955--.
3. Tzu tung hua: Automation. Peking. Bimonthly. In Chinese; some translations from Russian.
4. Archiwum Automatyki i Telemekhaniki. Bimonthly, 1956--. Warsaw. (Summaries in English).
5. Izvestiya Akademii Nauk: Otdelenie tekhnicheskii Nauk. A. Tekhnicheskaya kibernetika: Avtomatika, telemekhanika, radiotekhnika i elektronika. Nauk. Bimonthly, 1963--. Frequent bibliographies. Name was Avtomatika i telemekhanika, 1936-42, 1947-62; translated as Automation and Remote Control, ISA, 1958--.
6. Avtomatika. Bimonthly, 1960--. Ljubljana, Yugoslavia.
7. Otomeeshon: Automation. Tokyo. Monthly, 1956--; abstract section. Japanese language.

2.9:P250D (Cont.)

8. Mekhanizatsiya i avtomatizatsiya proizvodstva. Moscow. Monthly, 1959--. (Title was Mekhanizatsiya trudoemkykh i tyazhelykh rabot, 1947-58).

2.9:P300A Aerospace Sciences.

1. Missiles and Rockets. Washington. Weekly, 1955--.
2. Astronautics and Aerospace Engineering. AIAA. Monthly, 1963--. Merger of Aerospace Engineering (formerly Aeronautical Engineering, 1942--) with IAS News, 1963.
3. Progress in Aeronautical Sciences. Pergamon. Annual, 1961--.
4. Aircraft Engineering. London. Monthly, 1929--.
5. Planetary and Space Science. Pergamon. Monthly, 1953--.
6. Aerospace Medicine. New York. Monthly, 1930--; current bibliographies.
7. Progress in Astronautics and Aeronautics. AIAA and Academic Press. Irregular, 1960--. (Title was Progress in Astronautics and Rocketry, v. 1-8). Volumes and editors: 1. Solid Propellant Rocket Research (M. Summerfield), 1960; 692 pp. 2. Liquid Rockets and Propellants (L. E. Bollinger et al.), 1960; 682 pp. 3. Energy Conversion for Space Power (N. W. Snyder), 1961; 779 pp. 4. Space Power Systems (N. W. Snyder), 1961; 632 pp. 5. Electrostatic Propulsion (D. B. Langmuir et al.), 1961; 579 pp. 6. Detonation and Two-Phase Flow (S. S. Penner et al.), 1962; 368 pp. 7. Hypersonic Flow Research (F. R. Riddell), 1962; 758 pp. 8. Guidance and Control (R. E. Roberson et al.), 1962; 670 pp. 9. Electric Propulsion Development (E. Stuhlinger), 1963; 748 pp. 10. Technology of Lunar Exploration. (C. I. Cummings et al.), 1963; 989 pp.
8. Advances in Space Science and Technology. Academic Press. Annual, 1959--. Supplement: Oswald H. Lange and R. J. Stein, Space Carrier Vehicles, 1963; 350 pp.
9. Space/Aeronautics. New York. Monthly, 1944--.
10. Advances in the Astronautical Sciences. AAS. Irregular, 1949--.
11. Proceedings of the National Telemetering Conference. IAS. Annual, 1950--.
12. AIAA Journal. Monthly, 1963--. (Merger of ARS Journal and Journal of the Aerospace Sciences). Current bibliography, Technical

2.9:P300A (Cont.)

Literature Digest. Russian supplement: translated papers, and bibliography of translated items.

13. Reports (1915-56), Technical Memoranda (translations, 1921-56), and Technical Notes (1915-56). NACA. Irregular. Preceded NASA publications (1957--).
14. ARS Journal. Monthly, 1930-- (original title Jet Propulsion). Merged, 1963, with Journal of the Aerospace Sciences in AIAA Journal.
15. Navigation. Los Angeles. Quarterly, 1946--.
16. Journal of the Astronautical Sciences. AAS. Quarterly, 1953--.

2.9:P300B Aerospace Sciences.

1. Journal of the RAeS. Monthly, 1897--.
2. Spaceflight: Magazine of Aerospace Science and Technology. London. Bimonthly, 1959--.
3. Journal of the BIS. Bimonthly, 1934--; abstract section, about 2000 abstracts per year.

2.9:P300C Aerospace Sciences.

1. L'Homme et l'Espace: Actualité spatiale. Lausanne. Monthly, 1961--.
2. COSPAR Information Bulletin. Paris. Irregular, 1960--.
3. Recherche aerospatiale. ONERA. Bimonthly, 1948--. (Name changed, 1963, from Recherche aeronautique).
4. Astronautica Acta. IAF. Irregular, 1955--.
5. Rivista aeronautica-astronautica-missilistica. Rome. Monthly, 1925--.
6. Astronautik. Stockholm. Irregular, 1960--.
7. Luftfahrttechnik-Raumfahrttechnik. VDI. Monthly, 1955--.

2.9:P300D Aerospace Sciences.

1. Transactions of the JSASS. Tokyo. Irregular. 1958--. In English. Journal of the JSASS. Tokyo. Monthly, 1953--. In Japanese.

2.9:P300D (Cont.)

2. Voprosy Raketnoi Tekhniki. Monthly, 1951--. (Aerospace engineering).
3. Isskustvennie sputniki zemli. Nauk. Irregular, 1958--. Translated as Artificial Earth Satellites. Consultants, 1958--.

2.9:Pl400 Mathematics and its Applications.

1. Journal of SIAM. Quarterly, 1953--. Series A. Control. Quarterly, 1962. SIAM Review. Quarterly, 1959--.
2. Prikladnaya matematika i mekhanika. Nauk. Bimonthly, 1933--. Translated as Journal of Applied Mathematics and Mechanics, Pergamon, 1958--.
3. Journal of Mathematical Physics. AIP. Monthly, 1960--.
4. Zeitschrift für angewandte Mathematik und Mechanik. Akademie. Monthly, 1921--.
5. Quarterly of Applied Mathematics. Brown Univ., 1943--.
6. Bulletin of the AMaS. Bimonthly, 1895--. Transactions, monthly, 1912--. Proceedings, bimonthly, 1950--. Notices, 7 issues per year, 1954--.
7. Zeitschrift für angewandte Mathematik und Physik ZAMP. Basel. Bimonthly, 1950--. Papers in English, French or German.
8. Journal of Mathematical Analysis and Applications Academic Press, Bimonthly, 1958--.
9. Revue de mathematiques pures et appliquees. Bucharest. Quarterly, 1956--. Papers in French, English, Russian or German.
10. Mathematics of Computation. NAS-NRC. Quarterly, 1943--. (AMaS for NAS-NRC, 1962--.). (Available on Microcards, 1943-56).
11. Journal of Mathematics and Mechanics. Indiana. Irregular, 1952--. (Formerly Journal of Rational Mechanics and Analysis).
12. Journal of Mathematics and Physics. MIT. Quarterly, 1922--.

2.9:Pl450A Mechanics. Applied physics, engineering and mechanics have complex interrelations, all in turn related to the "mother of all sciences", mathematics. No fine distinctions are drawn in this classified arrangement; the subject index should be consulted.

1. Experimental Mechanics: Journal of the SESA. Monthly, 1961--.



2.9:Pl450A (Cont.)

2. International Journal of Mechanical Sciences. Pergamon, 1959--.
3. Advances in Applied Mechanics. Academic Press. About biennial, 1948--. Supplement 1: L. Talbot, editor, Rarified Gas Dynamics, 1961; 748 pp. Supplement 2: J. A. Laurmann, Rarefied Gas Dynamics, 1963; (International Symposium on Rarefied Gas Dynamics).
4. Journal of the Mechanics and Physics of Solids. Pergamon. Quarterly, 1953--.

2.9:Pl450B Mechanics.

1. Quarterly Journal of Mechanics and Applied Mathematics. Clarendon, 1948--.
2. Journal of Fluid Mechanics. Cambridge. Irregular, 1948--.

2.9:Pl450C Mechanics.

1. Mecanique-Electricite. Paris. Monthly, 1917--. (Title formerly began Revue generale de---).
2. Pratique des industries mecaniques. Paris. Monthly, 1918-- (formerly Ouvrier moderne).
3. Journal de mecanique. Gauthier. Quarterly, 1962--.
4. SFM Bulletin. Quarterly, 1951--.
5. Anales de Mecanica y Electricidad. Madrid. Bimonthly, 1922--.
6. Werkstattstechnik und Maschinenbau: Zeitschrift für Fertigung im Maschinenbau, Apparatebau und Feinmechanik. VDI. Monthly, 1907--.
7. Feinwerktechnik: Zeitschrift für alle Gebiete der feinmechanischen Technik. VDI. Monthly, 1897-1944, 1949--(various titles).
8. Proceedings of the International Congress for Applied Mechanics, Irregular, 1924--. (10th Congress, 1960; Elsevier, 1962; 370 pp.).
9. Zeitschrift für Wahrscheinlichkeitstheorie und verwandte Gebiete, Springer. Irregular, 1962--. (In German, English or French).

2.9:P450D Mechanics.

1. Proceedings of Vibration Problems. Warsaw. Quarterly, 1960--.  
(In English).
2. Archiwum Mechanika Stosowanej: Archives de Mecanique Appliquee.  
Warsaw. Bimonthly, 1949--. Papers may be in English, French  
or German.
3. Stanki i instrument. Moscow. Monthly, 1930--. Translated as  
Machines and Tooling, Production Engineering Research Assoc'n,  
Leicestershire, 1959--.
4. Revue de mecanique appliquee. Bucharest. Bimonthly, 1956--.  
(Papers in French, English, Russian or German).
5. Acta Mechanica Sinica. Peking. Quarterly, summaries in English  
or Russian.
6. Tohoku Daigaku Kosoku Rikigaku Kenkyujo Hokoku: Memoirs of the  
Institute of High Speed Mechanics. Sendai. Irregular.  
Summaries in English.
7. Kikai Shikenjo Shoho: Mechanical Laboratory Journal. Tokyo. Bi-  
monthly. Summaries in English.
8. Seimitsu Kikai: Journal of the Society of Precision Mechanics.  
Univ. Tokyo. Monthly, 1933--; includes a patent section.  
Summaries in English.
9. Kyushu Daigaku Oyo Rikigaku: Reports of RIAM. Irregular.  
Japanese language.
10. Monatsschrift für Feinmechanik und Optik. East Berlin. Monthly,  
1884--. (Formerly Deutsche optische Wochenschrift)

2.9:P500 Electricity: General. Instrumentation is somewhat diluted  
in this kind of literature, but always present and seldom  
hard to find.

1. Electro-Technology: Electrical/Electronic Design Magazine. New  
York. Monthly, 1928--. (formerly Electrical Manufacturing)
2. Progress in Dielectrics. Annual. Wiley, 1959--.
3. EDN: Electrical Design News. Englewood, Colorado. Monthly, 1956--.
4. Elektrotehniski Vestnik: Electrotechnical Review. Ljubljana.  
Bimonthly, 1934--. In Serbian; English, German and French  
summaries.

2.9:P500 (Cont.)

5. Revue generale de l'electricite. Paris. Monthly, 1917--.  
(Merger of Revue electrique and Lumiere electrique).  
Cumulative (10-vol.) indexes.
6. Energija: Electric Power Research. Zagreb. Bimonthly, 1953--.  
In Serbian; summaries in English.
7. Denki Shikenjo Iho: Electrotechnical Laboratory Bulletin. Tokyo.  
Monthly. Abstract section includes patents.
8. Elektrotehnika u Industriji i Pogonu. Zagreb. Irregular, 1958--.
9. Wissenschaftliche Zeitschrift der Elektrotechnik. Akademische.  
Quarterly, 1962--.
10. Direct Current: International Conversion Equipment Journal.  
London. Monthly, 1952--.
11. Revue E: Electricite, Electrotechnique generale, Courants forts  
et applications. Brussels. Quarterly, 1954--.
12. Elektrie. East Berlin. Monthly, 1947--(formerly Deutsche  
Elektrotechnik).
13. Power Express. IPI. 10 issues per year, 1961--; about 500 trans-  
lations or abstracts per year from Russian. (See also Auto-  
mation Express, Electronics Express, Physics Express).
14. Elektrichestvo. Moscow. Monthly, 1880--. Translated as Electric  
Technology USSR, Pergamon, 1960--.
15. Electrical Review. London. Weekly, 1872--. Patents section,  
about 5000 per year.
16. Dielectrics. Heywood. Quarterly, 1963--.
17. Proceedings of the Symposium on Recent Developments in Network  
Theory. Pergamon. Irregular, 1963--.
18. Proceedings of the Symposium on Precision Electrical Measurements.  
Irregular, 1963--.

2.9:P530 Electricity: Society Journals.

1. Electrotechnical Journal of Japan: ETJ. IEE (Japan). Quarterly,  
1957--; in English. Denki Gakkai Zasshi: Journal of the  
IEE (Japan). Monthly, 1888--; abstract section includes  
patents. Translated as Electrical Engineering in Japan.  
IEEE. Monthly, 1963--.

2. Journal of the IEE. Monthly, 1955--, (Was part of the Proceedings, 1949-54). Proceedings of the IEE. 1872--. A. Power Engineering. Bimonthly. B. Electronic and Communication Engineering. Bimonthly. C. Monographs. Irregular. Supplement No. 3, Nondestructive Testing in Electrical Engineering, 1962; 256 pp.
3. Bulletin de la Societe royale belge des electriciens. Quarterly, 1883--.
4. Transactions of the IRE. Varying frequencies, 1913--. Divided, 1951, in separate Professional Group series, numbering 28 in 1962: Aerospace; Antennas; Audio; Automatic control; Bio-medical Electronics; Receivers; Broadcasting; Circuit Theory; Communications; Components; Education; Electron Devices; Computers; Management; Writing and Speech; Human Factors; Industrial Electronics; Information Theory; Instrumentation; Microwaves; Military Electronics; Nuclear Science; Product Engineering; Frequency Interference; Reliability; Space Electronics; Ultrasonics; Vehicular Communications. (IRE and AIEE merged, 1962, as IEEE).
5. Electrotechnology: Journal of the SEE. Bimonthly, 1958--; bibliographies. (Formerly Electrotechnics, 1926-57).
6. Bulletin de la ASE. Biweekly, 1910--. Abstract section, about 2000 per year.
7. VDE Fachberichte. Annual, 1937--. I. Starkstromtechnik. Themengruppen: Energieverteilung. Industrielle Elektrowärme. Umformung. Lastverteilung und Verbundbetrieb. Elektromaschinenbau und Antrieb. Elektrolichttechnik. II. Nachrichtentechnik.
8. EP: Electric Power. BEAMA. Monthly, 1963--.
9. Bulletin de la Societe francaise des electriciens. Malakoff. Monthly, 1884--.
10. Electricien. Paris. Monthly, 1881-1914, 1919--.
11. Transactions of the AIEE. Varying frequencies, 1884--. Divided, 1952--, to include: I. Communications and Electronics. II. Applications and Industry. III. Power Apparatus and Systems. (AIEE and IRE merged, 1962, as IEEE).
12. ETT: Elektroteknisk Tidsskrift. NEF. 32 issues per year, 1888--.
13. l'Elettrotecnica. AEI. Monthly, 1914--.



2.9:P530 (Cont.)

14. Denki Tsushin Gakkai Zasshi: Journal of the IECE. Tokyo. Monthly. Translated as Electronics and Communications in Japan. IEEE, 1963--.
15. ETZ: Elektrotechnische Zeitschrift. VDE. Weekly, 1880--. Divided, 1949, into editions A and B.

2.9:P570 Company Journals. Technology-conscious house organs and technical periodicals with a manufacturer's backing.

1. Mitsubishi Denki Laboratory Report. Mitsubishi Electric Co., Amagasaki, Quarterly, 1960--. Mitsubishi Denki Giho. In Japanese.
2. Revue Brown Boveri. Baden. Monthly, 1914--.
3. Funk-G. Rundschau. Felten. Irregular, 1927--.
4. Toshiba Rebyu: Toshiba Review. Tokyo. Monthly. Summaries in English. (Electricity).
5. AEG Mitteilungen. Irregular, 1911--. AEG Progress (English edition), 1925--. AEG Technische Jahresbericht. Annual, 1928--.
6. Westinghouse Engineer. Pittsburgh. Bimonthly, 1941--.
7. Ericsson Review. Stockholm. Quarterly, 1924--. Editions in English and Swedish. Ericsson Technics. Semiannual, 1933--.
8. Siemens Review. Quarterly, 1925--. English edition of Siemens-Zeitschrift, irregular, 1921--. Entwicklungsberichte Siemens. Irregular, 1938--; mainly reprints.
9. Furukawa Electric Review. Furukawa Electric Co., Ltd. Quarterly, 1956--. (In Japanese, English summaries).
10. Philips Research Reports. Eindhoven. Bimonthly, 1946--. Philips Technical Review. Monthly, 1940--. English, Dutch, French and German editions.

2.9:P600A Electronics: General.

1. Journal of the Electronics Division, ASQC. Irregular, 1962--. Milwaukee.
2. Proceedings of the EIA Conferences on Maintainability of Electronic Equipment. EIA and Reinhold. Irregular, 1958--.

2.9:P600A (Cont.)

3. Electronics Express. IPI. 10 issues per year, 1958--; about 500 translations or abstracts from Russian per year. (See also Automation Express; Physics Express; Power Express).
4. Progress in Semiconductors. Wiley. Annual, 1956--.
5. Electronic Industries, Chilton. Monthly, 1942--, Abstract section; Annual Directory and State-of-the-Art issue.
6. Solid State Design. Dedham, Mass. Monthly, 1960--.
7. Advances in Electronics and Electron Physics. Academic Press. About annual, 1948--. Supplement 1: Henry F. Ivey, Electroluminescence and Related Effects, 1963; 276 pp.
8. Solid State Electronics: An International Journal. Pergamon. Bimonthly, 1960--.
9. Electronic Design. New York. Biweekly, 1952--.
10. Semiconductor Products and Solid State Technology. New York. Monthly, 1958--.
11. Electronics. McGraw-Hill. Weekly, 1930--. Decennial indexes, 1930--. Annual Supplement: Electronics Buyers' Guide. Electronics Engineering Manual, selected reprints in occasional volumes.
12. Proceedings of the National Electronics Conference. AIEE. Annual, 1944--.
13. Microelectronics and Reliability. Pergamon. Quarterly, 1962--. (Name was Electronics Reliability and Miniaturization until 1964).

2.9:P600B Electronics: General.

1. Industrial Electronics. London. Monthly, 1963--. (Absorbed Electronic Technology, 1963).
2. Electronic Technology. London. Monthly, 1923--(formerly Wireless Engineer). Merged, 1963, with Industrial Electronics.

2.9:P600C Electronics: General.

1. Halbleiterprobleme in Referate des Halbleiterausschusses der VDPG. Vieweg. Nearly annual, 1954--.

2.9:P600C (Cont.)

2. Elettronica. Turin. Bimonthly, 1952--. Merger of Televisione italiana and Elettronica e televisione.
3. Revista de informacion electronica. Madrid. Monthly, 1958--.
4. Electronique et l'automatisme: Techniques nouvelles appliquees a l'industrie. Paris. 10 issues per year, 1960--.
5. Revue MBLE. Quarterly, 1958--.
6. Electronic Applications. Philips. Quarterly, 1940--. English and Spanish editions.
7. Toute l'electronique. Paris. Monthly, 1934--. (Formerly Toute la radio).
8. Elektronik: Fachzeitschrift für die gesamte elektronische Technik und ihre Nachbargebiete. Munich. Monthly, 1952--(1952-54 as a supplement in Funkschau).
9. Revue generale d'electronique. Paris. Monthly, 1947--.
10. Elektronische Rundschau. Berlin. Monthly, 1947--(formerly Funk und Ton).
11. Philips Technical Review. Philips. Monthly, 1939--. Editions in English, Dutch, French and German.

2.9:P600D Electronics: General.

1. Erektoronikusu: Electronics. Tokyo. Monthly, 1956--.
2. Slaboproudy Obzor. Prague. Monthly, 1940--. (Semiconductors).
3. Denshi Kagaku: Electronic Science. Tokyo. 10 issues per year. Japanese language.
4. Przegląd Elektroniki: Electronics. Warsaw. Monthly, 1960--. (Papers sometimes in English).
5. Denshi kogyo: Electronician. Tokyo. Monthly, 1952--. Japanese language.

2.9:P700 Telecommunications: General. Interpreting telecommunications broadly, Sections P700-P730-P750-P770 include audio and video transmission, radar, and other ways of propagating signals. Overlap with electricity and electronics necessitated many arbitrary placement decisions; the subject index will help.

1. L'Onde electrique. Paris. Monthly, 1921--.
2. NTZ: Nachrichtentechnische Zeitschrift. Vieweg. Monthly, 1949--.  
English edition: NTZ Communications Journal. Monthly, 1962--.
3. Review of the Electrical Communication Laboratory. Tokyo. Bi-monthly, 1953--.
4. GEC Journal of Science and Technology. 3 issues per year, 1934--.  
GEC Telecommunications. Irregular, 1945--.
5. Telecommunication Journal. ITU. Monthly, 1934--. (Also French and Spanish editions). Name was Journal telegraphique, 1869-1933.
6. Bell System Technical Journal. Bimonthly, 1921--.
7. Western Union Technical Review. New York. Quarterly, 1947--.
8. Bell Laboratories Record. Monthly, 1922--.
9. Western Electric Engineer. New York. Quarterly, 1957--.
10. Dianxin Kexue: Science of Telecommunication. Peking. Monthly.  
In Chinese; some translations from Russian.
11. Sdelovaci Technika. Prague. Monthly, 1953--. (Telecommunications).
12. Journal of the Institution of Telecommunication Engineers. New Delhi. Bimonthly, 1955--.
13. Science and Industry. Philips. Bimonthly, 1953--.
14. Microwave Research Institute Symposia Series. BPI. Irregular, 1952--.
15. Philips Telecommunication Review. Hilversum. Irregular, 1934--.  
(formerly Communication News.).
16. G. W. A. Dummer and J. M. Robertson, European Miniature Electronic Components and Assemblies Data Annual. Pergamon, 1961--.
17. G. W. A. Dummer and J. M. Robertson, American Miniature and Microminiature Electronic Assemblies Data Annual. Pergamon, 1961--.
18. G. W. A. Dummer and J. M. Robertson, British Miniature Data Annuals.  
I. Miniature and Microminiature Electronic Assemblies. II.



Electronic Components. III. Transistor Diode and Semiconductor Devices. Pergamon, 1961--.

2.9:P730 Telecommunications: Radio.

1. Marconi Review. Quarterly, 1938--.
2. Proceedings of the IRE. Monthly, 1913-62. (Abstract section discontinued, January 1963). (IRE and AIEE merged, 1962, as IEEE).
3. Journal of the Radio Research Laboratory. Tokyo. Bimonthly, 1954--. In English.
4. RCA Review. Quarterly, 1936--.
5. Elektrosvyaz'. Monthly, 1929--. Moscow. Translation as Telecommunications (IEEE, 1957-62) joined with translation of Radiotekhnika as Telecommunications and Radio Engineering, IEEE. Monthly, 1963--.
6. Technische Mitteilungen PTT. Monthly, 1923--.
7. Dempa Kenkyujo Kiho: Radio Research Laboratory Review. Tokyo. Quarterly. Summaries in English.
8. Tijdschrift van het Nederlands Radiogenootschap. Delft. Bimonthly, 1937--.
9. Advances in Radio Research. Academic Press. Annual, 1962--.
10. Telefunken Zeitung. Berlin. Irregular, 1928--.
11. Central Radio Propagation Laboratory Ionospheric Predictions. NBS. Monthly, 1945--. (Formerly Basic Radio Propagation Predictions).
12. TELE: Meddelanden fran kungl. Telestyrelsen. Stockholm. Quarterly, 1950--.
13. Funk-Technik. Berlin. Semimonthly, 1946--.
14. Rundfunktechnische Mitteilungen. Hamburg. Bimonthly, 1957--.
15. Hoso gijutsu: Broadcast Engineering. Tokyo. Monthly. Japanese language.
16. Proceedings of the IRE (Australia). Sydney. Monthly, 1940--.
17. Post Office Electrical Engineers' Journal. Quarterly, 1908--.

18. Radio Science (formerly Section D. Radio Propagation of the NBS Journal of Research). NBS, Washington. Monthly, 1964--.

2.9:P750 Telecommunications: Electronic Aspects.

1. Radiotekhnika: Nauchnotekhnicheskii i teoreticheskii zhurnal (formerly Radiotekhnika i elektronika). Moscow. Monthly, 1946--. Translated as Radio Engineering and Electronic Physics, IEEE, 1957-62; joined with translation of Elektrosvyaz as Telecommunications and Radio Engineering, IEEE. Monthly, 1963--.
2. Alta frequenza: Rivista di elettronica e telecomunicazioni. AEI. Monthly, 1932--.
3. Radio and Electronic Engineer. BIRE. Monthly, 1939--. (Name was Journal of the BIRE, 1939-62).
4. Wireless World: Electronics, Radio, Television. London. Monthly, 1911--.
5. British Communications and Electronics. Heywood. Monthly, 1954--.
6. Revue HF: Electronique-Telecommunications. Brussels, Quarterly, 1949--.
7. National Telemetering Conference. IEEE. Annual, 1954--.
8. Radio-electronics. New York, Monthly, 1954--. (formerly Radio-electronic Engineering).

2.9:P770 Telecommunications: Devices; Frequencies.

1. Microwave Journal. Dedham, Mass. Monthly, 1958--.
2. Hochfrequenztechnik und Elektroakustik: Jahrbuch der drahtlosen Telegraphie und Telephonie. Akademische. Bimonthly, 1907--.
3. Point to Point Telecommunications: Journal for the Telecommunications Engineer. Marconi. Three issues per year, 1959--.
4. Frequency: Generation, Selection, Control, Measurement. Brookline, Mass. Bimonthly, 1962--.
5. Short Wave Magazine. London. Monthly, 1943--.
6. British Transistor Diode and Semiconductor Devices Data Annual. Pergamon, 1962--.

7. Proceedings of the MRI Symposia Series. Wiley. Annual, 1952--.
8. Cables et transmissions. SOTELEC. Quarterly, 1947--.
9. RRE Journal. Irregular, 1937--. (Title was TRE Journal, 1937-53).
10. Frequenz: Zeitschrift für Schwingungs-und Schwachstromtechnik. Berlin. Monthly, 1947--.
11. Microwave Tube Characteristics Tabulation. Semiannual. Semiconductor, Diode and Rectifier Characteristics Tabulation. Semiannual. Transistor Characteristics Tabulation. Quarterly. DATA, 1956--.
12. Festkörperprobleme. Vieweg. About annual, 1954--. (Title was Halbleiterprobleme, 1954-1961). (Semiconductors).

2.9:P800 Heat; Temperature; Cryoscopy. Temperature measurement over the entire known range is included. In temperature control there is some overlap with 2.3:1370, Process Control. The word Cryoscopy is not rigidly interpreted; here it means from 0°K. to about liquid air temperature.

1. International Journal of Heat and Mass Transfer. Pergamon. Bimonthly, 1960--. Bibliographies.
2. Revue generale de thermique. Paris. Monthly, 1962--. (Merger of Chaleur et industrie and Flamme et thermique).
3. Combustion. New York. Monthly, 1929--. (Combustion of 1910-29 took the name Engineering and Finance from 1929, ceding the old title to the new journal).
4. Varme: Dansk tidsskrift for Varme--, Ventilations-og Sanitetsteknik. Copenhagen. Bimonthly, 1936--.
5. Advances in Cryogenic Engineering: Proceedings of the Cryogenic Engineering Conference. Plenum. Annual, 1954--.
6. Teplofizika vysokikh temperatur. Nauk. Bimonthly, 1963--. (High temperature thermodynamics, rocket power, atomic power).
7. Communications from the Kammerlingh Onnes Laboratory of the University of Leiden. Irregular, 1885--.
8. Teionkagaku; Butsuri Hen: Cryoscopy. A. Physical Sciences. B. Life Sciences. Hokkaido. Irregular. Summaries in English.
9. Cryogenics: International Journal of Low Temperature Engineering and Research. Heywood. Quarterly, 1961--.

2.9:P800 (Cont.)

10. Progress in Cryogenics. Academic Press. Annual, 1959--.
11. Revue des hautes temperatures et des refractaires. Masson. Quarterly, 1964--.

2.9:P830A Light; Optics; Photography. Association of P830 and P870 with P800 is an obeisance to the old "Heat, Light and Sound" subdivision of physics in college textbooks. The arrangement is not a searching aid but is not expected to be a hindrance either.

1. Journal of the OSA. Monthly, 1917--. Cumulative index, 1917-50.
2. Photogrammetric Engineering. ASP. Quarterly, 1934--.
3. Illuminating Engineering. New York. Monthly, 1907--.
4. Radiation Research. Academic Press. Monthly, 1954--.
5. Applied Spectroscopy. SAS. Quarterly, 1947--.
6. Transactions of the AMIS. Quarterly, 1878--.
7. Advances in Spectroscopy. Interscience. Irregular, 1959--.  
(v. 1, 1959, 371 pp.; v. 2, 1962, 428 pp.).
8. Spectrochimica Acta. Pergamon. Monthly, 1945--.
9. Applied Optics. OSA. Monthly, 1962--.
10. SMPTE Journal. Monthly, 1916--.
11. Astrophysical Journal: International Review of Spectroscopy and Astronomical Physics. Chicago. Bimonthly, 1895--. Supplement, 1954--.
12. Photographic Science and Engineering. SPSE. Quarterly, 1950--.  
(Title changed from Photographic Engineering, 1957).
13. Infrared Physics: International Research Journal. Pergamon. Quarterly, 1961--.
14. Journal of Ultrastructure Research. Academic Press. Monthly, 1959--.

2.9P830B Light; Optics; Photography.

1. Optica Acta: International Journal of Optics. London. Irregular, 1954--.



2.9:P830B (Cont.)

2. Radiography. London. Monthly, 1935--. (Supplement in British Journal of Radiography, 1935-53).
3. Journal of the RMiS. Quarterly, 1878--.
4. Transactions of the IES. Monthly, 1936--.
5. Hilger Journal. London. Irregular, 1949--.
6. Television Society Journal. London. Quarterly, 1928--.
7. Journal of Photographic Science. RPS. Bimonthly. 1953--.  
Superseded Photographic Journal. B. Scientific and Technical Photography, 1948-52.
8. Photographic Journal. RPS. Monthly, 1853--.
9. Photoelectric and Spectrometry Group Bulletin. Cambridge (England). Irregular, 1958--.
10. Proceedings of the International Symposium on Photoelasticity. Pergamon. Irregular, 1963--.

2.9:P830C Light; Optics; Photography.

1. Proceedings of the ICI. Irregular (biennial to quinquennial), 1913--.
2. Optiknaemnden. Handlingar. Stockholm. Irregular, 1950--.
3. Science et industries photographiques. Paris. Monthly, 1921--.
4. Mikrokosmos: Zeitschrift für angewandte Mikroskopie. Stuttgart. Monthly, 1907--.
5. Bulletin de microscopie appliquée. Paris. Bimonthly, 1950--;  
abstract section, about 2400 abstracts per year.
6. Zeitschrift für wissenschaftliche Photographie Photophysik und Photochemie. Barth. Irregular, 1903--.
7. Atti della Fondazione Giorgio Rondhi e Contributi dell 'Istituto Nazionale di Ottica. Florence. Bimonthly, 1946--.
8. Zeitschrift für wissenschaftliche Mikroskopie und mikroskopische Technik. Hirzel. Irregular, 1894--.
9. Journal de microscopie. Paris. Quarterly, 1962--.

2.9:P830C (Cont.)

10. Television. Paris. Monthly, 1939--.
11. Lichttechnik. Berlin. Monthly, 1949--.
12. Strahlentherapie. Berlin. Monthly, 1912--.
13. Optik: Zeitschrift für das gesamte Gebiet der wissenschaftlichen und angewandten Optik. Stuttgart. Monthly, 1946--.
14. Revue d'optique theorique et instrumentale. Paris. Monthly, 1922--. Abstract section.
15. Photo-Technik und - Wirtschaft. Berlin. Monthly, 1952--.
16. Zeiss Mitteilungen "über Fortschritte der technischen Optik. Stuttgart. Irregular, 1961--. Zeiss Information (new title, 1963, of Zeiss Werkzeitschrift). Quarterly, 1953--.
17. Progress in Optics. Amsterdam. Irregular, 1960--.

2.9:P830D Light; Optics; Photography.

1. Optika i spektroskopiya. Moscow. Monthly, 1957--. Translated as Optics and Spectroscopy, OSA, 1959--.
2. Kristallografia. Nauk. Bimonthly, 1956--. Translated as Soviet Physics; Crystallography. AIP, 1957--.
3. Journal of Electron Microscopy. SEM. 3 issues per year, 1953--.

2.9:P870 Acoustics; Ultrasonics.

1. Journal of the AES. Quarterly, 1953--.
2. Noise Control. AIP. Bimonthly, 1955-61.
3. Documentazione di ultracustica. Rome. Annual, 1954--. (Ultrasonics bibliographies).
4. Ultrasonic News. Stamford, Conn. Quarterly, 1957--.
5. Acustica: International Journal of Acoustics (British, German, French). Hirzel. Bimonthly, 1951--. Supplement: Akustische Beihefte.
6. Ultrasonics: Principles and Practice of Ultrasonics and Allied Technology, London. Quarterly, 1963--.

2.9:P870 (Cont.)

7. Akusticheskii Zhurnal. Nauk. Quarterly, 1955--. Translated as Soviet Physics: Acoustics. AIP, 1956--.
8. Sound: Its Uses and Control. AcSA. Bimonthly, 1962--.
9. Journal of the AcSA. AIP. Monthly, 1929--.
10. Nihon Onkyo Gakkai-shi, Tokyo. Quarterly. Summaries in English; abstracts; bibliographies. (Acoustics).
11. Journal of Sound and Vibration. Academic Press. Quarterly, 1964--.

2.9:P900A Atomic and Nuclear Energy.

1. Nuclear Safety. AEC. Quarterly, 1960--.
2. Progress in Nuclear Physics. Pergamon. About annual, 1950--.
3. International Journal of Applied Radiation and Isotopes. Pergamon. Monthly, 1950--.
4. Radiochimica Acta. Academic Press. Irregular, 1963--.
5. Nucleonics. McGraw-Hill. Monthly, 1947--.
6. Bettis Technical Review: Reactor Technology. AEC. Irregular, 1957--.
7. Radiation Research. Academic Press. Bimonthly, 1954--. Supplements 1 and 2: Proceedings of the International Congress of Radiation Research (1958 and 1959), 1959 and 1960; 582 & 685 pp.
8. Journal of Nuclear Energy. Pergamon, 1954--. A and B: Reactor Science and Technology, monthly. C: Plasma Physics; Accelerators; Thermonuclear Research, bimonthly.
9. Progress in Nuclear Energy. Pergamon. Irregular, 1956--. In 12 series: I. Physics and Mathematics. II. Reactors. III. Process Chemistry. IV. Technology, Engineering and Safety. V. Metallurgy and Fuels. VI. Biological Sciences. VII. Medical Sciences. VIII. Economics. IX. Analytical Chemistry. X. Law and Administration. XI. Plasma Physics and Thermonuclear Research. XII. Health Physics.
10. Nuclear Science and Engineering. New York. Monthly, 1956--.
11. Power Reactor Technology. AEC. Quarterly, 1958--.
12. Plasma Physics and Thermonuclear Research. Macmillan. Irregular, 1962--.

2.9:P900B Atomic and Nuclear Energy.

1. Nuclear Engineering. London. Monthly, 1956--.
2. Molecular Physics. London. Bimonthly, 1958--.
3. Journal of the BNES. Quarterly, 1962--.
4. Nuclear Power: Reactors, Materials, Instrumentation, Processes, Irradiation. London. Monthly, 1956--.
5. Proceedings of the Symposium on Neutron Detection, Dosimetry and Standardization. IAEA. Irregular, 1963--.
6. Proceedings of the 1st International Conference on Paramagnetic Resonance. Academic Press. Irregular, 1963--. (First issue, 921 pp. in 2 v.).

2.9:P900C Atomic and Nuclear Energy.

1. Journal of Nuclear Materials. Amsterdam. Irregular, 1959--. English, French or German; summaries in Russian.
2. Energie nucleaire. Soprodac. Quarterly, 1956--.
3. List of Bibliographies on Nuclear Energy, 1960--. List of Periodicals in the Field of Nuclear Energy, 1961--. List of References on Nuclear Energy, 1959--. IAEA. Irregular (up to semimonthly).
4. Beiträge aus der Plasmaphysik. Akademie. Quarterly, 1961--.
5. Nuclear Instruments and Methods: Accelerators, Instrumentation and Techniques in Nuclear Physics. Amsterdam. Monthly, 1957--.
6. Atomic Energy Review. IAEA. Irregular, 1963--.
7. Nukleonik. Springer. Bimonthly, 1959--. Some papers in English.
8. Atom und Strom. Frankfurt. Monthly, 1955--. (Supplement to Elektrizitätswirtschaft).
9. Nuclear Physics. Amsterdam. Biweekly, 1957--. Papers in English, French or German.
10. Atomkernenergie: Ihre Anwendung in Wissenschaft, Technik und Wirtschaft. Munich. Monthly, 1956--.
11. Nuclear Fusion: Journal of Plasma Physics and Thermonuclear Fusion. IAEA. Quarterly, 1961--. (English, French, Russian and Spanish).



2.9:P900C (Cont.)

12. Bulletin d'informations scientifiques et techniques du commissariat a l'energie atomique. Dunod. Monthly, 1958--.
13. Neue Physik: Zeitschrift für die Gebiete der Atom- und Strahlungsphysik. Vienna. Irregular, 1959--.
14. Energia nucleare: Rivista mensile edita dal CISE. Monthly, 1954--.
15. Kerntechnik: Isotopentechnik und - Chemie. Munich. Monthly, 1959--.
16. Energie nucleaire: Revue de physique et de chimie nucleaires et de genie atomique. Paris. Semiquarterly, 1959--.

2.9:P900D Atomic and Nuclear Energy.

1. Nihon Genshiryoku Kenyujo Chosa Hokoku Tokyo. Irregular. Summaries in English. (Atomic energy reports).
2. Bulletin of the INSBK. Irregular, 1951--. Mostly English; summaries in French and Russian.
3. Polski Przegląd Radiologii i Medycyny Nuklearnej. Warsaw. Bimonthly, 1937--. Summaries in English.
4. Atomnaya energiya. Moscow, 1957--. Translated as Soviet Journal of Atomic Energy. Consultants, 1958--. (formerly called Atomic Energy (USSR)). Selected translations also, in German, in Kernenergie.
5. Nukleonika. Warsaw. Bimonthly, 1956--. Translated into English in Poland as Nukleonika, AEC and OTS, 1956--.
6. Kernenergie: Zeitschrift für Kernforschung und Kerntechnik. East Berlin. Monthly, 1958--. Includes selected translations from Atomnaya energiya.
7. Nihon Genshiryoku Gakkai shi: Journal of the AES (Japan). Monthly, 1959--. English summaries.

2.9:P1000A Geophysics: General.

1. Geophysics. Tulsa. Bimonthly, 1936--. Abstract section (patents added, 1939).
2. Transactions of the AGU, NRC. Quarterly, 1920--. Also: Journal of Geophysical Research, semimonthly, 1920--. Reviews of Geophysics, quarterly, 1963--. Geophysical Monograph Series, irregular, 1956--.

2.9:Pl000A (Cont.)

3. Advances in Geophysics. Irregular (1 to 3 years), 1952--. U. S. Weather Bureau and Academic Press.
4. Reviews of Geophysics. AGU. Quarterly, 1963--.
5. Journal of Geophysical Research. Washington. Quarterly, 1896--.  
(Formerly Terrestrial Magnetism and Atmospheric Electricity).

2.9:Pl000B Geophysics: General.

1. Geophysical Journal of the RAS. Quarterly, 1957--.

2.9:Pl000C Geophysics: General.

1. Bollettino di geofisica teorica ed applicata. Trieste. Quarterly, 1959--.
2. Geofisica pura e applicata. Milan. 3 issues per year, 1910--.
3. Arkiv för geofysik. Stockholm. Irregular, 1950--.
4. Geophysica. Helsinki. Irregular, 1935--. Series: General Geophysics and Meteorology. Papers in English or German.
5. Annales de geophysique. CNRS. Irregular, 1944--.
6. Tellus: Journal of Geophysics. Stockholm. Quarterly, 1949--.  
Papers in English, French or German.
7. Annali di geofisica. Rome. Quarterly, 1948--.
8. Geofysiske publikasjoner. Oslo. Irregular, 1920--.
9. Beiträge zur angewandten Geophysik (Gerlands). Leipzig. Irregular, 1930--. Supplements: Ergänzungshefte für angewandte Geophysik und Ergebnisse der Kosmischen Physik.

2.9:Pl000D Geophysics: General.

1. Geofysikalni Sbornik. CAV. Irregular, 1953--.
2. Anales del Instituto de Geofisica. Mexico City. Annual, 1955--.
3. Studia Geophysica et Geodaetica. CAV. Quarterly, 1957--. Papers in English, German or Russian.
4. Acta Geophysica Sinica. Peking. Semiannual. Summaries in English or Russian.

2.9:Pl000D (Cont.)

5. Zhurnal geofiziki. Moscow. Irregular, 1924--. (Title was Zhurnal geofiziki i meteorologii, 1924-29).
6. Acta Geodetica et Cartographica Sinica. Peking. Quarterly. Summaries in Russian.
7. Trudy Geofizicheskogo Instituta. Nauk. Irregular, 1948--.
8. Acta Physica Polonica. Warsaw. Irregular, 1941--. Papers may be in English, German or French. Supplement, irregular.
9. Przegląd Geofizyczny. Warsaw. Quarterly, 1956--. Summaries in English.
10. Doklady: Earth Sciences Sections. See Doklady in 2.9:Pl600.

2.9:Pl050 Geophysics: Special Topics.

1. Jishin. SSJ. Quarterly. Summaries in English. (Seismology).
2. Journal of Atmospheric Sciences. AMeS. Bimonthly, 1944--. (Formerly Journal of Meteorology).
3. International Geology Review. AGI. Monthly, 1959--. Translations from foreign languages, chiefly Chinese, Japanese and Russian.
4. Kenshin jiho: Quarterly Review of Seismology. Tokyo. Summaries in English.
5. Geochimica et Cosmochimica Acta. Pergamon. Bimonthly, 1951--.
6. Nihon Kaiyo Gakkai-shi. Tokyo. Quarterly. Summaries in English. (Oceanography).
7. Daigaku Chishin Kenkyuho Iho. Tokyo. Bimonthly. Summaries and some papers in English. (Seismology).
8. Quarterly Journal of the RMS, 1871--.
9. Acta Meteorologica Sinica. Peking. Quarterly. Summaries in English or Russian.
10. Journal of Atmospheric and Terrestrial Physics. Pergamon. Monthly, 1939--.
11. Zeitschrift für Meteorologie. Akademie. Monthly, 1947--.
12. Bulletin of the SSA. Quarterly, 1911--.

2.9:P1050 (Cont.)

13. Oceanologica et Limnologica Sinica. Peking. Semi-annual. Summaries in English or Russian.
14. Diquiwuli Kantan: Geophysical Surveying. Peking. Irregular. In Chinese; some translations from Russian.
15. Kisho Shushi: Meteorology. Tokyo. Bimonthly. Summaries in English.
16. Indian Journal of Meteorology and Geophysics. New Delhi. Quarterly, 1950--.
17. Kenkyu Jiho: Journal of Meteorological Research. Tokyo. Monthly. Kishocho Iho: Memoirs. Irregular. Summaries in English.
18. Izvestiya AN SSSR: Otdelenie geologicheskoe. Nauk. Monthly, 1937--. Translated as Izvestiya of the Academy of Sciences of the USSR, Geologic Series. NAS-NRC for AGI. Monthly.
19. Journal de mecanique et physique de l'atmosphere. Paris. Quarterly, 1949-- formerly Journal scientifique de meteorologie).

2.9:P1100A Physics: General. The boundary between "general" and "applied" physics is fuzzy; the distinction is mainly a convenience for keeping groups of entries down to manageable size.

1. Physical Review. AIP. Semimonthly, 1893--; weekly, 1964--. Cumulative indexes, 1893-1920, 1921-50; Author index, 1956-60. Physical Review Letters. Semimonthly, 1955--.
2. Brandeis University Summer Institute Lectures in Theoretical Physics. Benjamin. Annual, 1960--. (1962 Lectures in 3 v.): 1. Elementary Particle Physics. 2. Astrophysics and the Many-Body Problem. 3. Statistical Physics.
3. American Journal of Physics. AIP. Monthly, 1933--.
4. Reviews of Modern Physics. AIP. Quarterly, 1929--.
5. Annals of Physics. Academic Press. Monthly, 1957--.

2.9:P1100B Physics: General.

1. Proceedings of the Physical Society. London. Monthly, 1874--.
2. Philosophical Magazine. London. Monthly, 1798--.



2.9:Pl100B (Cont.)

3. Canadian Journal of Physics. Ottawa. Monthly, 1929--.
4. Journal of the Physics and Chemistry of Solids. Pergamon. Monthly, 1962--. Letters section: Solid State Communications. Monthly, 1963--.
5. Physics of Thin Films: Advances in Research and Development. Academic Press. Annual, 1963--.

2.9:Pl100C Physics: General.

1. Nederlands Tijdschrift voor Natuurkunde. Utrecht. Monthly, 1934--.
2. Fra Fysikkens Verden. NFS. Quarterly, 1939--.
3. Physics Letters. Amsterdam. Monthly, 1962--.
4. Arkiv för fysik. Stockholm. Monthly, 1949--.
5. Zeitschrift für Astrophysik. DPG. Irregular, 1930--.
6. Annalen der Physik. Barth. Irregular, 1799--. Beiblätter (with abstracts), 1877-1919, merged with Physikalische Berichte, 1920.
7. Zeitschrift für Physik. DPG. Irregular, 1920--.
8. Annales de physique. Paris. Monthly, 1815--. (Separated, 1915, from Annales de chimie et de physique, 1815-1914).
9. Physikalische Blätter. VDPG. Monthly, 1945--. Supplement, Physikalische Abhandlungen, Monthly, 1950--.
10. Cahiers de physique: Theorie, syntheses et mises au point. Paris. Monthly, 1947--.
11. Physica. Utrecht. Monthly, 1933--.
12. Journal de physique. Gauthier. Monthly, 1872--. Cumulative index, 1872-1901. (et le radium dropped from title, 1963).

2.9:Pl100D Physics: General.

1. Uspekhi fizicheskikh nauk. Moscow. Monthly, 1938--. Translated as Soviet Physics: Uspekhi. AIP, 1957--.
2. Fizika tverdogo tela. Nauk. Monthly, 1959--. Translated as Soviet Physics: Solid State. AIP, 1959--.

2.9:Pl100D (Cont.)

3. Zhurnal eksperimental'noi i teoreticheskoi fiziki. Nauk. Monthly, 1943--. (Formerly Fizicheskii Zhurnal. A.). Translated as Soviet Physics: JETP. AIP, 1955--.
4. Czechoslovak Journal of Physics. CAV. Irregular, 1951--.
5. Soviet Physics: Doklady. See Doklady in 2.9:Pl600.
6. Fortschritte der Physik. East Berlin. Monthly, 1953--.
7. Nihon Butsuri Gakkaishi: Journal of PS (Japan). Monthly, 1946--. Japanese language. (Physics).

2.9:Pl150A Physics: Applied.

1. Physics of Fluids. AIP. Monthly, 1958--.
2. Journal of Applied Physics. AIP. Monthly, 1930--. Absorbed Journal of Rheology, 1933.
3. Solid State Physics. Academic Press. About annual, 1955--.  
Supplements: I. T.P. Das and E. L. Hahn, Nuclear Quadrupole Resonance Spectrography, 1958; 223 pp. II. Wm. Low, Paramagnetic Resonance in Solids, 1960; 212 pp. III. A. A. Maradudin, E. W. Montroll and G. H. Weiss, Theory of Lattice Dynamics in the Harmonic Approximation, 1963; 325 pp. IV. Albert C. Beer, Galvanomagnetic Effects in Semiconductors, 1963; 250 pp.
4. APL Technical Digest. Bimonthly, 1961--.
5. Sperryscope. Sperry. Quarterly, 1941--. (Also Sperry Engineering Review).
6. Applied Physics Letters. AIP. Semimonthly, 1962--.
7. Physics Express. IPI. 10 issues per year, 1958--; about 500 translations and abstracts per year from Russian. (See also Automation Express; Electronics Express; Power Express).
8. Journal of Sound and Vibration. Academic Press. Quarterly, 1964--.

2.9:Pl150B Physics: Applied.

1. British Journal of Applied Physics. IP. Monthly, 1950--.
2. Notes on Applied Science. NPL. Irregular, 1951--. Includes instrumentation.

2.9:P1150C Physics: Applied.

1. Philips Research Reports: Journal of Theoretical and Experimental Research in Physics, Chemistry and Allied Fields. Philips. Bimonthly, 1946--.
2. Nuovo cimento. SIF. Semimonthly, 1855--. Papers largely in English; Italian, French, Spanish and German also accepted. Supplement, irregular, carries conference proceedings and special contributions.
3. Physik der kondensierten Materie. Springer. Irregular, 1962--. (German, French or English).
4. Biophysik. Springer. Irregular, 1963--.
5. Zeitschrift für angewandte Physik. Springer. Monthly, 1948--.
6. Journal of Applied Mathematics and Physics. Basel. Bimonthly, 1950--. (Titles also in French and German).
7. Physica Status Solidi. Akademie. Irregular, 1961--. (German or English).

2.9P1150D Physics: Applied.

1. Japanese Journal of Applied Physics. Tokyo. Monthly, 1962--. In English.
2. Oyo butsuri: Journal of Applied Physics. Tokyo. Irregular. Summaries in English.
3. Experimentelle Technik der Physik. East Berlin. Bimonthly, 1953--.
4. Zhurnal tekhnicheskoi fiziki. Moscow. Monthly, 1931--. Translated as Soviet Physics: Technical Physics. AIP, 1956--.
5. Indian Journal of Pure and Applied Physics. Pergamon. Monthly, 1963--.

2.9:Pl200A Engineering. The distinction between "engineering" and "applied physics" is artificial and may blur at times, but is not difficult. As drawn here, it is much like the difference between laboratory scale and plant scale operations in chemical research and industry.

1. SAE Journal. Monthly, 1917--.
2. Solar Energy: Journal of Solar Energy Science and Engineering. Tempe, Ariz. Quarterly, 1957--. Sun at Work. Tempe, Ariz. Quarterly, 1956--.

2.9:Pl200A (Cont.)

3. Product Engineering. McGraw-Hill. Monthly, 1930--.
4. Transactions of the AIMMEE. Varying frequencies, 1871--. Divided, 1950, into: Journal of Metals, Journal of Petroleum Technology, Mining Engineering. (Became AIMPE, 1956).
5. Bulletin of Research. UL. Irregular, 1937--.
6. Vacuum: International Journal and Abstracting Service for Vacuum Science and Technology. Pergamon. Monthly, 1951--. Abstract section.
7. American Machinist. McGraw-Hill. Biweekly, 1877--.
8. Transactions of the ASME. Monthly, 1880--. Divided, 1959, into:  
A. Journal of Engineering for Power. B. Journal of Engineering for Industry. C. Journal of Heat Transfer. D. Journal of Basic Engineering. E. Journal of Applied Mechanics.
9. International Congress on Vacuum Techniques. ICVT and Pergamon. Annual, 1961--. Merged, 1961, with National Symposium on Vacuum Technology. AVS and Pergamon. Annual, 1954-60.
10. Textile Research Journal. TRI. Monthly, 1925--.
11. Refrigerating Engineering. ASRE. Monthly, 1923--. Successor to Transactions of the ASRE, 1905-14, and Journal of the ASRE, 1914-22.
12. SPeE Journal. Monthly, 1945--. SPeE Transactions. Quarter, 1961--.

2.9:Pl200B Engineering.

1. Proceedings of the IME. Monthly, 1847--. Journal of the IME, 1939--. Cumulative index, 1847-1942.
2. Journal of the IE, 8 issues per year, 1929--. Transactions of the IE: Civil Engineering and Electrical and Mechanical Engineering, each semiannual, 1959--.
3. Canadian Journal of Technology. Ottawa. Monthly, 1944--.

2.9:Pl200C Engineering.

1. Technische Mitteilungen Krupp. Essen. Irregular, 1933-43 and 1954--.
2. Progressus: Engineering Progress. Dusseldorf, 1920--. Bimonthly, German and English editions; about quarterly in Spanish, French



2.9:Pl200C (Cont.)

and Russian; semiannual in Chinese, and annual in Portuguese, Italian and Polish editions.

3. VDI Zeitschrift. 36 issues per year, 1857--. Annual bibliographies, one to a subject, in most issues. VDI Jahrbuch (annual, 1954--), also carries bibliographies.
4. Ingenieur-Archiv. Springer. Quarterly, 1929--.
5. Werkstattstechnik: Zeitschrift für Produktion und Betrieb. Springer and VDI. Monthly, 1907-44, 1949--(Title varies).
6. Applied Scientific Research. NCO-TNO. Irregular, 1950--. A. Mechanics, Heat, Chemical Engineering, Mathematical Methods. B. Electrophysics, Acoustics, Optics, Mathematical Methods.
7. Zeitschrift für Metallkunde. VDI. Monthly, 1911--.
8. Forschung auf dem Gebiete des Ingenieurwesens. VDI. Bimonthly, 1935--.
9. Vide: Technique et applications. Paris. Bimonthly, 1946--; abstract section.
10. Memoires de la SICF. Quarterly, 1848--.
11. Vakuum-Technik. Esch/Taunus; 8 issues per year. (Formerly Glas-und Hochvakuumtechnik).
12. Russian Technical Literature. OECD. Quarterly, 1960--. Also carries title Russkaya tekhnicheskaya literatura. Editions in English, French and German.

2.9:Pl200D Engineering.

1. Memoirs of the Faculty of Science. Kyushu. A. Mathematics, 1947--. B. Physics, 1960--. C. Chemistry, 1959--. Memoirs of the Faculty of Engineering, 1942--. Reports of the Research Institute for Applied Mechanics, 1953--. All irregular; all in English.
2. Inzhenerno-fizicheskii Zhurnal. Minsk. Monthly, 1958--.
3. Osaka Kogyo Gijutsu Shikenjo Kiho: Bulletin. IRI. Quarterly. Osaka Furitsu Kogyo Shoreikan Hokoku: Reports. Semiannual. Contents and summaries in English.
4. Bulletin of JSME. Tokyo. Quarterly, 1958--. In English.

2.9:Pl200D (Cont.)

5. Memoirs of the Defense Academy (Japan): Mathematics; Physics; Chemistry; Engineering. Yokosuka, 1959--. Irregular. In English.
  6. Journal of Scientific and Industrial Research. New Delhi. Monthly, 1942--.
- 2.9:Pl300 Chemistry: Analysis (General). In a somewhat primitive sense, chemical analysis was mainly instrumental well over a century ago. Proliferation of increasingly sophisticated instruments has been dizzyingly rapid in the past few decades; there are many new periodicals, and old ones are changing their angle of attack.
1. Chemia Analityczna. Warsaw. Monthly, 1956--. Summaries in English.
  2. Publications GAMS: Methodes physiques d'analyse. Quarterly, 1938--.
  3. Analytical Chemistry. ACS. Monthly, 1929--. Has an instrumentation section. Collective indexes, 1929-43 and 1944-58.
  4. Zhurnal analiticheskoi khimii. Moscow. Bimonthly, 1946--. Translated as Journal of Analytical Chemistry. Consultants, 1952--.
  5. Chimie analytique: essais, mesures, controle. Soprodac. Monthly, 1897--. Abstract section. (Title was Annales de chimie analytique, 1897-1946).
  6. Analyst. London. Monthly, 1875--.
  7. Zeitschrift für analytische Chemie. Munich. Irregular, 1862--.
  8. Analyzer. Beckman. Quarterly, 1960--.
  9. Zavodskaya laboratoriya. Moscow. Monthly, 1935--. Translated as Industrial Laboratory. USSR, ISA, 1958--.
  10. Bunseki kagaku: Japan Analyst. Tokyo. Monthly. Contents and summaries in English.
  11. Journal of Physical Chemistry. ACS. Monthly, 1896--.
  12. Talanta: International Journal of Analytical Chemistry. Pergamon. Monthly, 1958--.

2.9:Pl330 Chemistry: Analysis (Special Methods).

1. Microchemical Journal. New York. Quarterly, 1957--.

2.9:Pl330 (Cont.)

2. Journal of Electroanalytical Chemistry. Elsevier. Monthly, 1959--.
3. Porarogurafii: Review of Polarography. ES (Japan). Quarterly, 1953--.
4. Berichte der DRG. Semiannual, 1954--. Bibliographies.
5. Zeitschrift für physikalische Chemie. 9 issues per year, 1887--. Leipzig (DDR). Independent (West German) edition. Akademische. Monthly, 1954--.
6. Advances in X-Ray Analysis: Proceedings of the Annual Conferences on Applications of X-Ray Analysis. Plenum. Annual, 1960--.
7. Rheology: Theory and Applications. Academic Press. Biennial, 1956--.
8. Journal of Molecular Spectroscopy. Academic Press. Monthly, 1957--.
9. Chromatographic Reviews. Elsevier. Annual, 1958--.
10. Mikrochimica et Ichnoanalytica Acta. Spring. Irregular, 1914--. (et Ichnoanalytica added to name, 1963).
11. Journal de chimie physique et de physicochimie biologique. Paris. Monthly, 1903--.
12. Journal of Quantitative Spectroscopy and Radiative Transfer. Pergamon. Bimonthly, 1961--.
13. Advances in Analytical Chemistry and Instrumentation. Interscience. About annual, 1960--.
14. Proceedings of the National Analysis Instrumentation Symposium. ISA. Annual, 1954--.

2.9:Pl370 Chemistry: Industrial.

1. Electrochemical Technology. ES. Bimonthly, 1963--. New York.
2. Dechema Erfahrungsaustausch. Irregular, 1949--. Parts: Uebersichten; Abhandlungen; Einzelfragen; Uebungsaufgaben.
3. Industrial and Engineering Chemistry. ACS. Monthly, 1909--, with quarterly supplements, 1962--.
4. Chemical Engineering Progress. AIChE. Monthly, 1908--.
5. Canadian Chemical Processing. Toronto. Monthly, 1917--.
6. Journal of the ES. Monthly, 1902--. (Includes Transactions of the ES).

2.9:Pl370 (Cont.)

7. Chemical and Process Engineering and Atomic World. London. Monthly, 1920--.
8. Journal of Chemical Physics. AIP. Monthly, 1933--.
9. Chemische Technik. Leipzig (DDR). Monthly, 1949--. Apparently no kin to defunct Chemische Technik (1928-45), which absorbed Chemische Apparatur (1913-42) in 1943 and still has some reference value.
10. Electrochimica Acta. Pergamon. Irregular, 1959--.
11. Denki Kagaku. ES (Japan). Monthly. Includes abstracts and patent notices. Journal of the ES (Japan). Quarterly, 1933--. In English.
12. Berichte der BGPC (new title, 1963, of Zeitschrift für Elektrochemie); 10 issues per year, 1894--.

2.9:Pl400 Testing materials. Like chemical analysis, materials testing has progressed far past the old machines for tearing, crushing or abrading samples to an early demise. In both cases one result is rapid obsolescence of the literature; constant attention to new literature is needed.

1. Nondestructive Testing. SNT. Bimonthly, 1942--. (Title was Industrial Radiography and Nondestructive Testing, 1942-49).
2. Mitteilungen der DMPA. Irregular (various titles), 1883--; Wissenschaftliche Abhandlungen der DMPA, irregular, 1925--.
3. Revue de metrologie pratique et legale: Poids et mesures. Paris. Monthly, 1923--. Decennial indexes.
4. Materials Research and Standards. ASTM. Monthly, 1961--. (Successor to ASTM Bulletin, 1921-60).
5. RILEM Bulletin. Paris. Irregular, 1954--. (Edition in English).
6. EOQC Bulletin. Quarterly, 1958--.
7. Test Engineering and Management. Oakhurst, N. J. Monthly, 1954--.
8. Applied Materials Research: International Journal of the Properties and Testing of Engineering Materials. London. Quarterly, 1962--.
9. Statens provningsanstalt. Stockholm. Irregular. Berättelse, 1920--; Meddelande, 1921--; Cirkulär, 1922--. In English, or in Swedish with English summaries.



2.9:PL400 (Cont.)

10. CIRP Annalen. UNESCO and Springer. Quarterly, 1951--. (Mechanics, testing).
11. Schweizer Archiv für angewandte Wissenschaft und Technik: Zeitschrift für das Gesamtgebiet der Werkstoffkunde und Werkstoffprüfung. SVMT. Monthly, 1935--. Berichte des SVMT. Irregular, 1925--.
12. Materialprüfung. DVM and VDI. Monthly, 1959--. Papers in German, French or English.
13. Quality Assurance. Wheaton, Ill. Monthly, 1962--.
14. Microtecnic: International Review for Measuring and Gaging Techniques, Optics and Precision Mechanics. Lausanne. Monthly, 1947--. Editions also in French and German.
15. Proceedings of the SESA. Semiannual, 1943--.
16. Proceedings of the Symposium on Physics and Nondestructive Testing. ASTM. Annual, 1960--.

2.9:PL500 Metrology and Calibration. Metrology here simply means measuring (methods, devices, units). Entries are mainly generalities; measurement in some aspect runs all through this Guide. Calibration is interpreted in its customary meaning.

1. Revue de metrologie pratique et legale. Paris. Monthly, 1923--.
2. Monthly Review: Journal of the IWMA. Monthly, 1893--.
3. Bulletin of the NRLM. Irregular.
4. Scale Journal. Chicago. Monthly, 1914--.
5. Amtsblatt für das Eichwesen. Vienna. About 8 issues per year.
6. Technische Ueberwachung. Berlin. Semimonthly, 1897-1943 (title began with Zeitschrift für die, 1897-1939). Suspended, 1943-59; resumed 1960--.
7. PTB Mitteilungen: Amts- und Mitteilungsblatt der PTB. Bimonthly, 1964--; successor to Amtsblatt der PTB, irregular, 1891-1963. Separate from the annual Wissenschaftliche Abhandlungen der PTB, 1949--. (Until 1949 the Bundesanstalt was the Reichsanstalt, PTA).
8. Technical News Bulletin. NBS. Monthly, 1917--. Includes lists of NBS publications.

2.9:Pl500 (Cont.)

9. Boletim de Metrologia. Rio de Janeiro. Annual, 1955--.
10. Sbornik trudov VNIIM. Irregular, 1939--. (Title, 1939-40, Trudy VNIIM). Issues prior to 1939 were under the same title in French.
11. Metric Measures: Journal of Weights and Measures. New Delhi. Bimonthly, 1958--.
12. Report of the National Conference on Weights and Measures. NBS. Annual, 1916--.

2.9:Pl550 Standards and Specifications. Standardizing agencies and societies issue great numbers of reports and bulletins, such as librarians call "separates", which are not entered in this Guide; but some of their indexes (e.g. from ASTM and DNA) are entered.

1. Informaciones IRAM. Irregular, 1936--.
2. DIN-Mitteilungen. DNA. Monthly, 1922--. New, amended and canceled German standards; standards scheduled for revision or cancellation; foreign standards; technical articles.
3. Normalisace. Prague. Monthly, 1953--.
4. Bulletin mensuel de la normalisation francaise. AFN. Monthly, 1951--.
5. South African Standards Bulletin. Pretoria. Monthly, 1947--.
6. ASTM Proceedings. Annual, 1899--. Quinquennial indexes, 1951--, with some entries from other ASTM sources. Fifty Year Index to Technical Papers and Reports, 1901-50; 1952; 230 pp.
7. Standardizatsiya. Moscow. Monthly, 1937--.
8. Annual Report: NBS, 1927--. (Title was Standards Yearbook, 1927-34).
9. Standardizarea. Bucharest. Monthly, 1941--. (formerly Buletinul de Standardizare).
10. ASTM Standards. Triennial, 1939--. Alternate title, Book of ASTM Standards. Separate annual index. Supplements between issues.
11. ISI Bulletin. Bimonthly, 1949--.
12. SAA Bulletin. Quarterly, 1938--.

2.9:Pl550 (Cont.)

13. Bulletin Belge de Metrologie: Belgisch Bulletin van het Ijkwezen. Brussels, Monthly, 1941--.
14. Normalisatie. Delft. Bimonthly, 1925--.
15. Courrier de normalisation. AFN. Bimonthly, 1936--.
16. New Zealand Standards. Bulletin. Wellington. Quarterly, 1955--.
17. Index of Military Specifications and Standards. MB. Semiannual, 1951--, with cumulative monthly supplements, in 4 v.: Military, Army, Navy, Air Force.
18. Magazine of Standards. ASA. Monthly, 1930--. (Various earlier titles).

2.9:Pl600 General Science. Some major journals covering science broadly are listed here because all science is more or less instrumental. In a dry run to see how instrumental, casual scanning of the French Academy's Comptes rendus over several years turned up many descriptions of instruments and shattered the cherished novelty of one American invention by at least four decades of priority.

1. Journal of the IIS. Quarterly, 1919--.
2. Naturwissenschaften. Springer. Semimonthly, 1914--.
3. Journal of Research. NBS, 1928--. Sections: A. Physics and Chemistry. Bimonthly. B. Mathematics and Mathematical Physics. Quarterly. C. Engineering and Instrumentation. Quarterly. D. Radio Propagation. Quarterly.
4. Priroda. Nauk. Monthly, 1912--.
5. Doklady AN SSSR. Nauk. 3 issues per month, 1933--. Selected sections translated as: Doklady: Earth Sciences Sections, AGI, 1959--. Soviet Physics: Doklady, AIP, 1956--.
6. Science. AAAS. Weekly, 1883--.
7. Atti della ANL: Classe di scienze fisiche, matematiche e naturali. Rome. Irregular, 1604--. Memorie della ANL. Irregular, 1870--. Rendiconti della ANL. Monthly, 1870--.
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The author index includes:

a) Names of authors, editors, compilers and translators.

b) Names (often abbreviated) of corporate authors (government agencies, societies, institutions, companies, etc.). Abbreviations are interpreted in 1.10.

The subject index is the source of references for which no author is listed. Since names of commercial publishers are omitted, this occurs most frequently in entries for their periodicals.

No distinctions are made as to national origin of corporate authors; entries are by the name (or its abbreviation) of the corporate entity. Locations (not mailing addresses) are entered with the names in 1.10.

### 3. AUTHOR INDEX

- AAAS 2.9:P1600,6  
 Aarons, Jules 2.3:2000,5  
 AAS 2.3:1830A,1; 2.9:P300A,10,16  
 Abraham, Herbert 2.3:3600,5  
 ABS 2.2:B400A,9  
 Academie des Sciences 2.9:1600,11  
 ACeS 2.1:A700,13  
 ACGIH 2.3:1270,18  
 Achema 2.5:D100C,5  
 ACM 2.1:A300,7; 2.3:1430A,7;  
 2.9:P200,10  
 ACS 2.1:A500,2; 2.6:G200,2;  
 2.7:I200,1; 2.9:P1300,3,11;  
 2.9:P1370,3  
 Ackerman, Eugene 2.3:3400A,11  
 AcSA 2.9:P870,8,9  
 Acton, J. R. 2.3:1530C-S  
 Adamson, Colin 2.3:1670,5  
 Adkins, B. 2.3:1100,7  
 Adler, Richard B. 2.3:1530A,12;  
 2.3:1670,15; 2.3:1700A,3  
 AEC 2.1:A400,3; 2.1:A600,16;  
 2.3:1000A,25; 2.3:2400A,9; 2.5:D100A,  
 15; 2.9:P900A,1,6,11; 2.9:P900D,5  
 AED 2.2:B400C,2  
 AEG 2.3:1630C,6; 2.9:P570,5  
 AEI 2.9:P530,13; 2.9:P750,2  
 AEI Ltd. 2.1:A300,6  
 AERE 2.3:2130,13  
 AES 2.6:G200,2; 2.9:P870,1  
 AES (Japan) 2.9:P900D,7  
 AF 2.3:1830A,7; 2.3:1900,5  
 AFN 2.9:P1550,4,15  
 AFOSR 2.2:B100,22  
 AGARD 2.3:1800,4,6  
 AGET 2.3:1550A,5  
 AGI 2.1:A400,6; 2.9:P1050,3,18;  
 2.9:P1600,5  
 AGU 2.9:1000A,2,4  
 Ahrendt, Wm. R. 2.3:1300A,4;  
 2.3:1330A,5  
 Ahrens, Louis H. 2.3:3200A,14  
 AI 2.2:B400A,11; 2.9:P170,6  
 AIAA 2.1:A600,4,16; 2.9:P300A,2,  
 7,12  
 AICHe 2.9:P1370,4  
 AID 2.2:B300,3  
 AIEE 2.2:B200,7; 2.9:P530,11;  
 2.9:P600A,12; 2.9:P730,2  
 AIMME 2.9:P1200A,4  
 AIMPE 2.3:2800A,14; 2.9:P1200A,4  
 AIP 2.3:1000A,6; 2.3:2800A,6;  
 2.9:P100A,5; 2.9:P400,3;  
 2.9:P830D,2; 2.9:P870,2,7,9;  
 2.9:P1100A,1,3,4; 2.9:P1100D,1,2,3;  
 2.9:P1150A,1,2,6; 2.9:P1200A-S;  
 2.9:P1370,8; 2.9:P1600,5  
 Air Univ. 2.1:A700,16; 2.7:I100,5  
 Ajzenberg-Selove, Fay 2.3:2400C,4  
 Akademie 2.1:A400,8; 2.1:A500,4;  
 2.1:A600,3; 2.3:1900,1; 2.3:2130,15;  
 2.9:P400,4; 2.9:P900C,4; 2.9:P1050,  
 11; 2.9:P1150C,7  
 Akademische 2.9:P1330,5  
 ALA 2.6:G100,5  
 Albers, Vernon M. 2.3:2600,12  
 Albrecht, A. P. 2.3:1000A,15  
 Aleksandrov, S. G. 2.3:1830D,2  
 Alexander, Carter 2.6:G100,6  
 Alexander, Wm. 2.3:1230B,2  
 Alkemade, C. T. J. 2.3:2100C,8,18  
 Allen, Harry C., Jr. 2.3:2130,12  
 Alley, Charles L. 2.3:1500,13  
 Alt, Franz L. 2.3:1430A,9  
 AMA 2.1:A100,2  
 AMaS 2.1:A100,10; 2.9:P400,6,10  
 Ameling, Walter 2.3:1430C,5  
 Am. Gastroscopic Club 2.9:P130,9  
 Am. Gastroscopic Society 2.9:P130,9  
 AMeS 2.1:A400,4; 2.3:2000,8;  
 2.9:P1050,2  
 AMiS 2.9:P830A,6  
 Amos, Stanley W. 2.3:1550B,4  
 AMS 2.3:2900A,5  
 Anderson, Thomas P. 2.3:2900A,11  
 Andrews, H. L. 2.3:2400A,11  
 Anhorn, V. J. 2.3:1100,9  
 ANIDEL 2.2:A300,3  
 ANL 2.9:P1600,7  
 APL 2.3:2600,13; 2.6:G200,3,4;  
 2.9:P1150A,4  
 Appelt, Heinz 2.3:3200C,6  
 Argentieri, Domenico 2.3:2100C,7  
 Arguimban, L. B. 2.3:1530A,12  
 Arlt, I. E. 2.8:Pa300,4  
 Armstrong, A. F. 2.2:B200,9  
 Army Signal Corps 2.3:2500A,6  
 Arnold, Ronald N. 2.3:2900B,4  
 Aronson, M.H. 2.3:1530A,22; 2.3:3500,8  
 Aronssohn, R. 2.3:1560C,4  
 ARS 2.9:P300A,14  
 ASA 2.3:3700,3; 2.9:P1550,18

### 3. Author Index (Cont.)

- ASDC 2.9:P200,9  
 ASE 2.9:P530,6  
 Aseev, Boris P. 2.3:1770D,5  
 ASHAE 2.5:D100A,4  
 Askania 2.9:P100C,2  
 ASLIB 2.4:D,6;2.6:G300,4  
 ASM 2.3:1000A,23  
 ASME 2.1:A200,6;2.2:B100,11;  
     2.3:1000A,11;2.3:1770A,7;2.3:2500A,2;  
     2.3:2900A,4;2.3:3000A,2;2.5:D100A,3;  
     2.9:P130,4;2.9:P1200A,8  
 Asmuss, Friedrich 2.3:2700,3  
 ASP 2.3:2200,8;2.9:P830A,2  
 ASQC 2.3:1530A,5,16;2.9:P600A,1;  
     2.9:P200,9  
 ASRE 2.9:P1200A,11  
 ASTM 2.1:A300,9;2.2:B100,14;2.2:P100-  
     S-2;2.3:3300,7;2.3:3600,4,7;  
     2.9:P1400,16;2.9:P1550,6,10  
 Atabekov, G. I. 2.3:1630D  
 Atwood, K. W. 2.3:1500,13  
 Aubert, J. 2.3:1700C,7  
 AUDD 2.8:Pa300,6  
 Audubert, Rene 2.3:3200C,4  
 Auerbach, R. 2.3:2100C,14  
 Auger, Raymond W. 2.3:1630A,7  
 Auwaerter, Max 2.3:2500C,6  
 Avery, D. G. 2.3:2100A,9  
 AVS 2.9:P1200A,9;2.9:P1200A-S  
  
 Babichenko, S. I. 2.3:2300-S-5  
 Babikov, Oleg I. 2.3:2600,10  
 Baehr, H. D. 2.3:2800C,3  
 Baghdady, Elie J. 2.3:1700A,7  
 Bair, Edward J. 2.3:3200A,12  
 Baker, H. Dean 2.3:2800A,5  
 Baker, N. H. 2.3:2800A,5  
 Bakish, Robert 2.3:1500,21;2.3:2400A,7  
 Balabanian, Norman 2.3:1600A,3  
 Banks, Basil 2.3:3600-S  
 Banner, E. H. W. 2.3:1230B,6  
 Barber, Alfred W. 2.3:1530A,1  
 Barchewitz, Pierre 2.3:2130,8  
 Barnard, G. P. 2.3:2130,14  
 Barr, W. E. 2.3:1100,9  
 Barratt, E. S. 2.2:B400A,12  
 Barraud, J. 2.3:2100C,12  
 Barrett, A. S. D. 2.3:2500B,5  
 Basmajian, J. V. 2.3:3400A,9  
 Batailler, G. 2.3:2200,7  
  
 Batel, W. 2.3:3200C,8  
 Bates, Roger G. 2.3:3200A,16  
 Batsanov, Stepan S. 2.3:2100D  
 Battey, Edw. W. 2.3:1200B,5  
 Baudoux, P. 2.3:1600C,4  
 Bauer, Georg 2.3:2100C,6  
 Bauman, Robert P. 2.3:2130,6  
 Baumeister, Theodore 2.3:1000A,28  
 Baurand, J. 2.3:1600C,10;2.3:1770C,3  
 Bayer, E. 2.3:3300,11  
 Bazantova, Helga 2.3:3400D,3  
 Bazovsky, Igor 2.3:1200A,10  
 BCeS 2.1:A700,8  
 BCS 2.9:P200,12  
 BEAMA 2.9:P530,8  
 Beck, A. H. W. 2.3:1500,18;2.3:1530B,7  
 Becker, K. 2.3:2300,37  
 Beckett, C. W. 2.3:3000A,1  
 Beckman 2.9:P1300,8  
 Beckwith, T. G. 2.3:1200A,3;2.3:3500,6  
 Behar, Manoel F. 2.3:1200A,13  
 Bellander, J. 2.3:1730C,14  
 Bell, David A. 2.3:1770A,6  
 Bell Labs. 2.1:A100,12;2.2:B400A,5,8;  
     2.3:1560A,3,12;2.7:I200,2;2.9:P700,  
     6,8  
 Benedict, W. S. 2.3:3000A,1  
 Beneking, H. 2.3:1560C,5  
 Bennett, Alva H. 2.3:2170,11  
 Bennett, W. R. 2.3:1700A,4  
 Bent, R. D. 2.3:1830A,12,19  
 Benz, Friedrich 2.3:1700C,4  
 Beranek, Leo L. 2.3:2600,8,14  
 Berg, Akael' I. 2.3:3400D,5  
 Bergmann, Ludwig 2.3:2600,16  
 Berkeley, E. C. 2.3:1400A,7  
 Berl, W. G. 2.3:3200A,10  
 Berndt, G. 2.3:3500,1  
 Bertholdi, J. 2.3:3000D,2  
 Besoain-Santander, Manuel 2.3:3400D,7  
 Besserer, C. W. 2.3:1800,17  
 Besterman, Theodore 2.2:B400B,3  
 Bevitt, William D. 2.3:1560A,9  
 BGPC 2.9:P1370,12  
 BHI 2.9:P130,1  
 BHRA 2.1:A600,1  
 Biemann, Klaus 2.3:2130,16  
 Bier, Milan 2.3:3200B,4  
 Biffen, Frank M. 2.3:3200A,18  
 Billeter, Ernst P. 2.3:1400C,4  
 Binney, E. A. 2.3:1100,7



### 3. Author Index (Cont.)

- Biondi, F. J. 2.3:1560A,12  
 BIRE 2.9:P750,3  
 Birkhoff, Garrett 2.3:3000A,8  
 Birks, J. B. 2.3:1500,18;2.3:2400B,3  
 Birks, LaVerne S. 2.3:2130,4;  
 2.3:3200-A-S-2  
 BIS 2.3:1730B,2;2.3:1830B,1,2;  
 2.9:P300B,3  
 Blackburn, John F. 2.3:2300,17;  
 2.3:3000A,12  
 Blackhurst, A. W. 2.3:1100,7  
 Blackwell, Lawrence 2.3:1550A,2  
 Blackwell, William A. 2.3:2900A,19  
 Blakemore, John S. 2.3:1550B,7  
 Blatz, Hanson 2.3:2300,39  
 Blau, Henry H., Jr. 2.3:2300,35  
 Bleisteiner, G. 2.3:1000C,1;  
 2.3:1300C,7  
 Blet, G. 2.3:1630C,2  
 Bleuler, E. 2.3:1900,3  
 Bloemen, A. F. P. K. 2.3:1630C-S  
 Bloemendal, Hans 2.3:3200A-S-1  
 Blom, Mogens A. 2.3:1000C,2  
 BLS 2.2:B200,6  
 BMI 2.1:A300,1;2.1:A600,11;  
 2.6:G100,7  
 BNES 2.9:P900B,3  
 Bockris, J. O'M. 2.3:2800B,4  
 Bogdanov, A. A. 2.3:2300-S-5  
 Boisvert, M. 2.3:1430C,7  
 Bokrinskaya, A. A. 2.3:1730D,4  
 Boley, Bruno A. 2.3:2800A,7  
 Boltaks, Boris I. 2.3:1550D-S  
 Bolt, R. H. 2.3:2600,2  
 Boltz, David F. 2.3:3200A,8  
 Bolz, R. W. 2.3:1000A,11  
 Bone, A. J. 2.3:1270,10  
 Bonnevale, G. 2.3:1830C  
 Bonney, E. A. 2.3:1800,17  
 Boone, E. Milton 2.3:1530A,11  
 Booth, Andrew D. 2.3:1400B,3;  
 2.3:1430B,2  
 Booth, Kathleen H. V. 2.3:1430B,1,2  
 Bopp, W. 2.3:1730C,10  
 Borden, Perry A. 2.3:1830A,11  
 Born, Max 2.3:2100B,4  
 Bosworth, Richard C. L. 2.3:3200B,5  
 Bouche, C. 2.3:1000C,7  
 Boulding, R. S. H. 2.3:1730A,3  
 Boutry, Georges A. 2.3:2100C,14  
 Bouvet, J. 2.3:1830C  
 Bouvier, M. 2.3:1230B,6  
 Bowerman, Elizabeth G. 2.6:G100,9  
 Boyd, Anne M. 2.7:I300,9  
 Boyd, George A. 2.3:3400A,13  
 Bozorth, Richard M. 2.3:1600A,7  
 BPI 2.3:1700B,1; 2.9:P700,14  
 BPO 2.8:Pa100,5,10;2.8:Pa200,1,6,8  
 Braddick, H. J. J. 2.3:1100,10  
 Braffort, P. 2.3:1400A-S-2;  
 2.3:1400C,10  
 Brandeis University 2.9:Pl100A,2  
 Brandmuller, Josef 2.3:2130,2  
 Brandwood, L. 2.3:1400B,3  
 Brault, R. 2.3:1770C,8  
 Braun, Ludwig 2.3:1370A,2  
 Brazier, Mary A. B. 2.3:3400A,7  
 Breed, Charles B. 2.3:1270,10  
 Breese, S. S. 2.3:2170,13  
 Breinin, Goodwin M. 2.3:3400B,3  
 Brekhovskikh, Leonid M. 2.3:3000D,3  
 Bremer, John W. 2.3:2800A,11  
 Brennan, J. N. 2.2:B400A,6  
 Breyer, Bruno 2.3:3200A-S-3  
 Brezina, Miroslav 2.3:3400D,3  
 Bridgers, H. E. 2.3:1560A,3,12  
 Bridgman, P. W. 2.3:2500A,9  
 Brillouin, Leon 2.3:1400A,13  
 Britten, Frederick J. 2.3:2700,4  
 BRL 2.3:1430A,16  
 Brombacher, W. G. 2.3:2500A,5,7,11  
 Broschat, E. 2.3:2900C,10  
 Brown, A. E. 2.3:2600,5  
 Brown-Boveri 2.9:P570,2  
 Brown, George 2.3:2100B,2  
 Brown, J. 2.3:1730B,4  
 Brown, Kenneth 2.3:1830A,17  
 Brown, Robert G. 2.3:1300A,14;  
 2.3:1330A,1  
 Brown Univ. 2.9:Pl400,5  
 Brownell, Gordon L. 2.3:2300,47  
 Brugel, Werner 2.3:2130,18  
 Bruining, H. 2.3:1500,18  
 Brunetti, C. 2.3:1530B,9  
 BSI 2.3:1370B,1  
 BSIRA 2.1:A200,9;2.3:1200B,2;  
 2.3:1230B,3,5  
 BSR 2.1:A400,9  
 Buch, S. 2.3:2500C,4  
 Buchanan, John P. 2.3:1730A,9  
 Buchheim, Robert W. 2.3:1830A,6

### 3. Author Index (Cont.)

- Buchholz, Werner 2.3:1400A,4  
 Buck, N. L. 2.3:1200A,3;2.3:3500,6  
 Bukstein, J. 2.3:3400A,15  
 Bundy, F. P. 2.3:2500A,14  
 Bu Ord 2.3:1230A,15  
 Burgess, Eric 2.3:1830A,20  
 Burhop, E. H. S. 2.3:1570,1  
 Burke, Arvid J. 2.6:G100,6  
 Burroughs Corp. 2.1:A300,13  
 Burton, J. 2.3:1300C,9;2.3:3500,10  
 Bu Ships 2.3:2600,16  
 Button, K. J. 2.3:1730A,18  
 Butz, William H. 2.3:3200A,20  
 Bu Weaps 2.3:1800,15  
  
 Cady, W. M. 2.3:2300,26  
 Cairo, L. 2.3:1770C,2  
 Calabro, S. R. 2.3:1500,4  
 Calvet, Edouard 2.3:2800C,7  
 Cambel, Ali B. 2.3:2900A,11  
 Cambridge 2.9:P450B,2;2.9:P830B,9  
 Cambridge Comm. Corp. 2.1:A300,12  
 Canadian Patent Office 2.8:Pa100,4  
 Candler, Christopher 2.3:2100B,8  
 Cannon, C. G. 2.3:1570,6  
 Canuel, J. 2.3:1330C,7  
 Carasso, J. I. 2.3:1550D-S-1  
 Carmichael, C. 2.3:1000A,26  
 Carpentier, J. 2.3:1830C  
 Carr, C. C. 2.3:1000A,12  
 Carroll, G. C. 2.3:1200A,8;2.3:1230A,9  
 Carroll, John M. 2.3:1530B,4  
 Carter, L. J. 2.3:1830B,2  
 Cassidy, Harold G. 2.3:3200A,6  
 du Castel, F. 2.3:1770C,6  
 CAV 2.3:1230D,2;2.3:1300D,7;  
     2.3:1400C,8;2.3:1550C,2;2.3:1670,10;  
     2.9:P1000D,1,3,4  
 Cerni, Richard H. 2.3:1270,19  
 CGS 2.3:2000,1  
 Chaffois, J. 2.3:1800,10  
 Chamot, Emile M. 2.3:3200A,22  
 Champeix, R. 2.3:1530C,6  
 Chance, Britton 2.3:2300,19;  
     2.3:2700,1  
 Chaplin, Allen L. 2.3:3200A,4  
 Charyk, J. V. 2.3:1800,7  
 Chernov, Leo A. 2.3:1770D,2  
 Chernyi, Gorimir G. 2.3:3000D,1  
  
 Chestnut, Harold 2.3:1300A,15;  
     2.3:1330A,4  
 Chicago 2.3:1900,7;2.9:P830A,11  
 Chilton, Cecil H. 2.3:1000A,1  
 Chougnet, P. 2.3:1630C,5  
 Chu, Lan Jen 2.3:1670,15;2.3:1700A,3  
 Chu, Yaohan 2.3:1430A,21  
 Churchman, C. West 2.3:3500,5  
 CIIPN 2.2:B400D,3  
 CIRP 2.9:P1400,10  
 CISE 2.9:P900C,14  
 Clark, Douglas E. 2.3:1700B,2  
 Clark, George L. 2.3:2170,9;  
     2.3:2300,41;2.3:2300S-2  
 Clarricoats, P. J. B. 2.3:1730A,4  
 Cleave, J. P. 2.3:1400B,3  
 Cliton, J. 2.3:2900C,1  
 CIS 2.2:B100,1,7  
 CMA 2.5:D100B,1  
 CNET 2.1:A300,15;2.3:1530C,8  
 CNRS 2.1:A100,4;2.3:2800C,5;  
     2.9:P130,7;2.9:P1000C,5;2.9:P1600,14  
 Coales, J. F. 2.3:1300D,6  
 Coblenz, Abraham 2.3:1560A,7  
 Cochran, Wm. G. 2.3:1100,6  
 Cockrell, William D. 2.3:1500,10  
 Collin, Robert E. 2.3:1730A,6  
 Collins, G. B. 2.3:2300,6,28  
 Collins, John R. 2.3:3200A,24  
 Collins, R. B. 2.3:2200,5  
 Collis, C. F. 2.3:1900A-S-2  
 Collison, Robert L. 2.6:G100,11  
 Columbia 2.1:A700,12;2.2:B200,10;  
     2.3:1430A,12;2.3:1500,6  
 Colwell, R. E. 2.3:3000A-S  
 Comings, Edward W. 2.3:2500A,3  
 Comolet, R. 2.3:2900C,8;2.3:2900C-S  
 Condon, Edw. U. 2.3:1000A,3  
 Conn, G. K. T. 2.3:2100A,9  
 Connolly, T. W. 2.3:1430A,4  
 Conrad, Victor 2.3:1900,9  
 Considine, Douglas M. 2.3:1200A,12  
 Conway, Hugh G. 2.3:3000B,3  
 Cook, Nathan H. 2.3:3200A-S-4  
 Cooley, Paul A. 2.3:3700,3  
 Cooter, I. L. 2.3:1500-S;2.3:1600A-S  
 Copper Development Assoc'n  
     2.3:2800B,2  
 Corcoran, G. F. 2.3:1630A,5  
 Corcoran, William H. 2.3:3000A,6

### 3. Author Index (Cont.)

- Corfu Advanced Study Institute  
2.3:2000,5
- Corrigan, K. E. 2.3:3400A,18
- COSPAR 2.9:P300C,2
- Cosslett, Vernon E. 2.2:B100,21;  
2.3:2130,3;2.3:2170,7,15,17
- Couling, S. A. 2.3:2900B,2
- Council of Ministers, USSR 2.3:3500,4
- Cowan, John 2.3:1770A,8
- Cowdry, Edmund V. 2.3:1100,3
- Cox, G. M. 2.3:1100,6
- Crafton, Paul A. 2.3:3100,7
- Crandall, Stephen H. 2.3:3100,9
- Crane, Evan J. 2.6:G200,5
- Crawford, Alan E. 2.3:2600,6
- Crede, Charles E. 2.3:3100,5,13
- Cremer, L. 2.3:2600,18
- Croft, T. 2.3:1000A,12
- Cross, J. L. 2.3:2500A,5,16
- Cross, P. C. 2.3:2130,12
- Crouthamel, C. E. 2.3:2300,34
- CSIRO 2.2:B100,24
- Curie, D. 2.3:2100C,4
- Curtis, H. Allen 2.3:1630B,2
- Dalla Valle, Jos. M. 2.3:2900B,1
- Dalton, Blanche H. 2.6:G200,7
- Damaskine, N. I. 2.2:B200,8
- DATA 2.9:P770,11
- Davies, Gomer L. 2.3:1230A,2;  
2.3:1630A,6
- Davis, D. C. 2.3:1000A,15
- Davis, H. E. 2.3:3600,9
- Davis, Sidney A. 2.3:1330A,11
- Davy, J. R. 2.3:2500B,4
- DBP 2.3:1270,14
- DDC 2.1:A100,5
- DDR 2.8:Pa100,22;2.8:Pa300,4
- Dean, John A. 2.3:2100A,7,11
- Dean, Mills 2.3:1230A,8
- Debraine, P. 2.3:3500,12
- Decaulne, P. 2.3:1300C,8
- Dechema 2.1:A200,1;2.5:D100C,5
- Defense Academy (Japan) 2.9:Pl200D,5
- Deitz, A. C. H. 2.3:3600,11
- Delahay, Paul 2.3:3200A,26
- Delavenay, Emile 2.2:B200,5
- Delavenay, K. 2.2:B200,5
- Demarles, F. 2.3:1300C,6
- Denis-Papin, M. 2.3:1200C,3
- Denn, Robert C. Jr. 2.3:1800,9
- Desirant, M. 2.3:1700C,9
- Dettman, John W. 2.3:2900A,9
- Deve, Charles 2.3:1200C,1
- DeWitt, David 2.3:1560A,18
- D'Eye, R. W. M. 2.3:2300,43
- Diaz, Joaquin B. 2.3:2900A,13
- Dicke, Robert H. 2.3:2300,8
- Dickson, J. H. 2.3:1200A,14;  
2.3:1230A,14
- Diels, K. 2.3:2500C,2
- Diemer, A. 2.3:1300C,11
- DIN 2.9:Pl550,2
- Direktoratet for Patent- og  
Varenmaerkevaesenet 2.8:Pa100,2
- Ditl, A. 2.3:1700C,3
- Dix, Charles H. 2.3:2000,3
- DMA 2.5:D100C,2
- DMPA 2.9:Pl400,2
- DNA 2.3:3300,8;2.3:3700,1,4;  
2.9:Pl550,2
- DO 2.2:B100,5
- Dobrowski, Jerzy 2.3:3400D,1
- DOD 2.2:B100,12;2.3:1550A,5
- Dodik, S. D. 2.3:1730D,3
- DOFL 2.2:B100,20;2.3:1550A,9;  
2.6:G200,8
- Donaldson, Coleman du P. 2.3:1800,7
- Donaldson, P. E. K. 2.3:3400B,1
- Donovan, A. F. 2.3:1800,7
- Dorn, John E. 2.3:2900A,7
- Dorrance, William H. 2.3:1800,14
- Doucet, Y. 2.3:2800C,1
- Doughtie, Venton L. 2.3:2900A,15
- Douglas, R. D. 2.3:1230A,8
- DPA 2.8:Pa100,8,16,17;2.8:Pa200,4
- DPG 2.9:Pl100C,5,7
- DPV 2.8:Pl00,2
- Drabble, John R. 2.3:1550B,3
- Draganescu, M. 2.3:1530D,2
- Draper, C. S. 2.3:1200A,16
- DRG 2.9:Pl330,4
- DSIR 2.3:1400B,1;2.7:I300,10
- DT 2.2:B400C,3
- Dubbel, Heinrich 2.3:1000C,7
- Duclaux, F. 2.3:2000,7
- Ducloux, G. 2.3:2100C,1
- Dudley, Darle W. 2.3:1000A,8
- Duke, W. M. 2.3:2800A,9
- Dumesnils, Danloux 2.3:1430C,4



### 3. Author Index (Cont.)

- Dummer, G. W. A. 2.3:1500,20;  
2.3:1530B,8,9;2.3:1550B,8;2.9:P700,  
16,17,18  
DuMont 2.9:P170,4  
Dushman, Saul 2.3:2500A,1  
Dutton's 2.3:1900,2  
DVM 2.9:P1400,12
- Eastin, Roy B. 2.6:G100,13  
Ebert, H. 2.3:1000C,3  
Eckman, Donald P. 2.3:1200A,17;  
2.3:1370A,7  
Edmundson, H. P. 2.3:1400A,5  
Ehricke, K. A. 2.3:1800,17  
EIA 2.9:P250A,3,4;2.9:P600A,1,2  
Eidgenössisches Amt für geistiges  
Eigentum, Bern 2.8:Pa100,9  
Eirich, F. R. 2.3:3600,11  
Eisler, Paul 2.3:1570,4  
EL 2.3:1430D,2  
von Elbe, Guenter 2.3:2800B,5  
Elliott, A. 2.3:1200A,14;2.3:1230A,14  
Elmore, W. C. 2.3:2400A,2  
Elonka, S. M. 2.3:1270,1  
Emel'ianov, A. I. 2.3:2800D,10  
Emmerich, C. L. 2.3:1230A,4  
Emmons, H. W. 2.3:1800,7  
Engelhard 2.9:P170,8  
Engstrom, Arne 2.3:2170,17  
EOQC 2.9:1400,6  
Erasmus, H. 2.8:Pa300,4  
Ericsson 2.9:P570,7  
ES 2.3:1900A-S1;2.9:P1370,1,6  
ES (Japan) 2.9:P1330,3;2.9:P1370,11  
Eschelbach, R. 2.3:3300,10  
Eshbach, Ovid W. 2.3:1000A,9  
Eskinazi, Salamon 2.3:3000A,14  
ESL 2.1:A600,13  
Espe, Werner 2.3:2500C,9  
Estermann, I. 2.3:1900,3  
Europarat Committee 2.3:Pa300,11  
Evans, J. 2.3:1560A,6  
Evans, Walter R. 2.3:1300A,17  
Ewald, Heinz 2.3:3200C,2
- Fagot, J. 2.3:1500,18  
Faisandier, J. 2.3:2900C,12  
Faltin, Hans 2.3:1270,6
- Fano, Robert M. 2.3:1670,15;  
2.3:1700A,3  
Farrington, G. H. 2.3:1300A,7  
Fassbender, H. 2.3:2300,32  
Fedorov, R. E. 2.3:1830D,2  
Fedotov, Ya. A. 2.3:1550-S2;  
2.3:1730D,1  
Feigl, E. 2.3:2170,16  
Felten 2.9:P570,3  
Feodosiev, V. I. 2.3:1830D,1  
Fernandez, Manuel 2.3:1800-S2  
Ferns, James L. 2.3:1670,6  
Feshbach, H. 2.3:1100,2  
FID 2.7:1100,1  
Fiebranz, A. 2.3:1770C,5  
Fifer, Stanley 2.3:1430A,20  
Finkelburg, Hans H. 2.3:1330C,3  
Finstenwalder, R. 2.3:2200,9  
Fischer, Heinz 2.3:2300,35  
Fischer, Robert B. 2.3:2170,19  
Fisher, Ronald A. 2.3:1100,1,4  
Fleury, P. 2.3:2100C,5  
Flock, Ernest F. 2.2:B400A,2  
Flory, L. E. 2.3:1770A,3  
Fluegge-Lotz, Irmgard 2.3:1370A,13  
Flugge, J. 2.3:2200,10  
Flugge, Wilhelm 2.3:1000A,29;  
2.3:2900C,6  
Flynn, T. M. 2.2:B400A,4  
Fogel, Lawrence J. 2.3:3400A,6  
Fondazione Giorgio Ronchi 2.9:P830C,7  
Fontaine, G. 2.3:1560C,7  
Foppl, Ludwig 2.3:2100C,16  
Forsythe, W. E. 2.3:1000A,5  
Fosberry, John 2.3:2200,12  
Foskett, Douglas J. 2.6:G100,2  
Foster, D. 2.3:3200A,11  
Foster, L. E. 2.3:1270,19  
Fouille, A. 2.3:1200C,3;2.3:1330C,7;  
2.3:1600C,3;2.3:3100,3  
Fournet, G. 2.3:1550C,1  
Fournier, A. 2.3:1500,8  
Fox, Jerome 2.3:1000A-S  
Fradin, Afroim Z. 2.3:1730D,2  
Francis, G. E. 2.3:2300,45  
Francon, M. 2.3:2100A-S1;2.3:2100C,5  
Frank, Ernest 2.3:1670,16  
Franklin Institute 2.9:P1600,16  
Frederick, Carl L. 2.3:1500,15  
Freitag, R. F. 2.3:1800,17



### 3. Author Index (Cont.)

Frey, Austin R. 2.3:2600,1  
 Freymann, R. 2.3:3200C,10  
 Fribance, Austin E. 2.3:1200A,15  
 Fricke, Hans W. 2.3:1530D,1  
 Friedman, Morris 2.3:2900D,2  
 Froberg, C. E. 2.3:1400C-S  
 Fromy, E. 2.3:1700C,5;2.3:1730C,7  
 Fruhauf, H. 2.3:1700C,3  
 Frumkin, A. N. 2.3:1550D,2  
 Frungel, Franz 2.3:1670,11;  
 2.3:1730C,4  
 Fry, Bernard M. 2.6:G200-S  
 Funk, G. 2.3:1670,9  
 Furukawa Electric Co. 2.9:P570,9

GAMS 2.9:P1300,2  
 GAFC 2.1:A700,6  
 Gardner, H. A. 2.3:3600,2  
 Gardner, J. P. 2.3:1830A-S1,S2  
 Gartner, Wolfgang W. 2.3:1560A,17  
 Gatland, Kenneth W. 2.3:1830B,1  
 Gaul, Roy D. 2.3:1270,20  
 Gaydon, Alfred G. 2.3:2800B,6,S  
 GE 2.3:1500,19;2.3:1560A,10  
 Geary, Peter J. 2.3:1230B,3  
 GEC 2.9:P700,4  
 Geil, G. W. 2.3:2800A,8  
 Gelbtuch, A. 2.3:1550D,4  
 George, Joseph J. 2.3:2000,2  
 Gerbach, G. 2.3:3300,11  
 Geyger, William A. 2.3:1630A,11  
 Ghose, Rabindra N. 2.3:1700A,10  
 Gibbons, H. P. 2.2:B400A,1  
 Gibbons, J. F. 2.3:1560A,14  
 Gildersleeve, T. R. 2.3:1400A-S3  
 Gille, J. C. 2.3:1300C,8  
 Gillespie, A. B. 2.3:1500,18;  
 2.3:2400A,5  
 Gillon, E. 2.3:1600C,5  
 Giloi, Wolfgang 2.3:1430C,6,S  
 Ginzburg, Vitalii A. 2.3:1700D  
 Ginzton, Edward L. 2.3:1700A,5  
 Glaser, Walter 2.3:2170,3  
 Glasoe, George N. 2.3:2300,5  
 Glass, R. C. 2.3:1100,8  
 Glasser, Otto 2.3:3400A,3  
 Glasstone, Samuel 2.3:2400A,9  
 Glazebrook, Richard 2.3:1000B,1  
 Glocker, Richard 2.3:3600,13  
 Goering, H. L. 2.3:1550A,8

Goethert, B. H. 2.3:1800,6  
 Gohlke, Werner 2.3:1270,15;  
 2.3:1670,17  
 Gol'denveizer, A. L. 2.3:2900D,3  
 Golding, Edw. W. 2.3:1230B,1  
 Goldman, Richard 2.3:2600,4  
 Goldman, Sylvia 2.6:G200,3  
 Goldsmid, H. J. 2.3:1550B,3  
 Goldsmith, Alex 2.3:1000B,2  
 Goldstein, G. D. 2.3:1300A,5  
 Golubev, B. P. 2.3:2300-S4  
 Gomer, Robert 2.3:1900,7  
 Gonda, J. 2.3:3100,1  
 Goode, Harry H. 2.3:1300A,3  
 Goodheart, Clarence F. 2.3:1600A,2  
 Gordy, Walter 2.3:2130,1  
 Gorelik, S. S. 2.3:3300-S  
 Gorlich, P. 2.3:2100C,2  
 Gorn, L. S. 2.3:2300-S5  
 Gotlieb, C. C. 2.3:1400A,12  
 Goto, Mochinori 2.3:1430D,2  
 Gottlieb, Irving M. 2.3:1530A,3  
 Goubau, Georg 2.3:1730A,13  
 Grabbe, Eugene M. 2.3:1300A,12  
 Grabner, Alfred 2.3:2200,10  
 Grammel, Richard 2.3:2900C,14  
 Granville, J. W. 2.3:1550B,8  
 Grasshof, G. 2.3:2300,40  
 Grave, Hans F. 2.3:1230C,4;  
 2.3:1270,3  
 Graves, Eileen C. 2.7:I100,9  
 Gray, Dwight E. 2.3:1000A,6  
 Gray, Paul E. 2.3:1630A,8  
 Gray, Truman S. 2.3:1500,7  
 Greenwood, Ivan A. Jr. 2.3:2300,21  
 Gregory, Winifred 2.7:I300,8  
 Griffin, N. B. 2.3:1500,20  
 Griffiths, Roosevelt 2.3:1270,7  
 Grings, W. W. 2.3:3400A,19  
 Grube, R. H. 2.3:2800A,4  
 Gruhle, Wolfgang 2.3:1530C,12  
 Gubanov, A. I. 2.3:1550D,5  
 Guild, John 2.3:3500,3  
 Guilleminet, G. 2.3:1330D,3  
 Guillien, R. 2.3:1530C,2  
 Guillon, M. 2.3:2900C,4  
 Guinier, A. 2.3:1730C,12  
 Guiyesse, L. 2.3:2600,13a  
 Gundlach, F. W. 2.3:1700C,2  
 Gunther, K. 2.3:1270,14  
 Gurevich, Aleksandr G. 2.3:1770D,4

### 3. Author Index (Cont.)

Guthrie, A. 2.3:2400A,2

Haas, Alfred 2.3:1530B,5  
 Habell, K. J. 2.3:2100B,5  
 Hackforth, Henry L. 2.3:2100A,10  
 Haeder, H. 2.3:2900C,16  
 Hague, Bernard 2.3:1230B,7  
 Haine, Michael E. 2.3:2130,3;  
 2.3:2170,1

Haines, J. E. 2.3:1370A,5  
 Haitinger, Max 2.3:2170,21  
 Hall, John S. 2.3:2300,2  
 Halpern, Carl 2.2:B400A,2  
 Hamilton, Donald R. 2.3:2300,7  
 Hamilton, Jerome J. 2.3:1530B,1  
 Handloser, John S. 2.3:3400A,1  
 Hans, Hermann A. 2.3:1530A,7  
 Harley, John H. 2.3:3200A,3  
 Harms, Fritz F. 2.3:1000C,9  
 Harris, Cyril M. 2.3:3100,13  
 Harris, Forest K. 2.3:1670,8  
 Harrison, Thomas R. 2.3:2800A,13

Harrison, V. G. W. 2.3:3000B,4  
 Hartog, Jacob P. D. 2.3:3100,11  
 Harvard 2.3:1900,9;2.3:2600,22  
 Harvey, Arthur F. 2.3:1700A,8  
 Harvey, P. D. 2.3:1000A,20  
 Hass, F. 2.3:1530C,7  
 Hass, Georg 2.3:1900,10  
 Havlicek, F. I. 2.3:1200C,6  
 Hawkins, Reginald R. 2.6:G300,1

Hawley, Dean 2.3:2200,6  
 Hawthorne, W. R. 2.3:1800,7  
 Haxby, R. O. 2.3:1900,3  
 Hayes, Wallace D. 2.3:3000A,16  
 HDL 2.6:G200,8

Heavens, O. S. 2.3:2100A,5  
 Hecht, F. 2.3:3200C,1  
 Heckelmann, Adolf 2.3:1270,9  
 Heftmann, Erich 2.3:3200A,25  
 Helstrom, Carl W. 2.3:1500,18  
 Hengstenberg, J. 2.3:3200C,9  
 Henley, A. 2.2:B400A,11  
 Henney, Keith 2.3:1500,14  
 Henning, F. 2.3:2800C,9  
 Henning, H. 2.3:1300C,7  
 Herrmann, R. 2.3:2100C,8,18  
 Herzfeld, Charles M. 2.3:2800A,6  
 Herzog, Werner 2.3:1530C,1;  
 2.3:1730C,9

Hetenyi, Miklos I. 2.3:1000A,16  
 Heumann, Gerhart W. 2.3:1330A,3  
 Heunert, Hans-Henning 2.3:2200,3  
 Heyden, R. J. 2.3:2400A,2  
 Heyn, Eugen 2.3:1900,1  
 Heyrovsky, J. 2.3:3300,11  
 Hibbard, W. R., Jr. 2.3:2500A,14  
 Hilbourne, R. A. 2.3:1730B,3  
 Hilger 2.1:A500,1;2.3:1200B,4;  
 2.3:1200C,1;2.3:2100B,8;2.9:P830B,5  
 Hill, John C. 2.3:1900,2  
 Hillier, J. 2.3:2170,12  
 Hilsenrath, Joseph 2.3:3000A,1  
 Himmler, C. R. 2.3:1330C,2;2.3:3000C,1  
 Hine, Gerald J. 2.3:2300,47  
 Hingarani, N. G. 2.3:1670,5  
 Hintenberger, Heinrich 2.3:3200C,2  
 Hirschberg, D. 2.3:1400A-S2;  
 2.3:1400C,10  
 Hirschhorn, H. J. 2.3:1000B,2  
 Hoare, Frank E. 2.3:2800B,7  
 Hodgman, Chas. D. 2.3:1000A,27

Hoffmann, F. 2.3:1370C,5  
 Hogg, C. A. 2.3:1730A,15  
 Holbrook, Jas. G. 2.3:1500,18  
 Holdam, J. Vance Jr. 2.3:2300,21  
 Holland-Merten, Erwin L. 2.3:2500C,1,10  
 Hollingdale, S. H. 2.3:1400B,2  
 Holm, Else 2.3:1570,10  
 Holm, Ragnar 2.3:1570,10  
 Holmes, D. K. 2.3:2400A,12  
 Holmes, P. J. 2.3:1550B,6  
 Holmstrom, J. Edwin 2.6:G200,1  
 Holsizer, Robert I. 2.3:2300,20  
 Holzbock, Werner G. 2.3:1200A,7  
 Holzmann, Max 2.3:3400C,2  
 Horger, O. J. 2.3:1000A,11  
 Horna, O. 2.3:1230D,2  
 Horner, J. B. 2.3:2300,7  
 Horton, H. L. 2.3:1000A,2;2.3:2900A,3  
 Horton, Joseph W. 2.3:2600,20  
 Hosmer, G. L. 2.3:1270,10  
 Howard, R. C. 2.3:1800,11  
 Hoyt, S. L. 2.3:1000A,11  
 Hubner, Erhard 2.3:3100,2  
 Huckert, Jesse 2.3:1000A,11  
 Hueter, Theodore F. 2.3:2600,2  
 Hughes, D. G. 2.3:2400A,3  
 Hughes, D. J. 2.3:1100,8  
 Hughes, V. W. 2.3:1900,3

### 3. Author Index (Cont.)

- Hult, J. 2.3:3300,12  
 Hume, J. N. P. 2.3:1400A,12  
 Hume, Kenneth J. 2.3:3500,14,15  
 Humphries, John 2.3:1830A,18  
 Hund, August 2.3:1770A,4;2.3:2300,29  
 Hunt, Frederick V. 2.3:2600,22  
 Hunter, Lloyd P. 2.3:1000A,17;  
 2.3:1550A,10  
 Hure, F. 2.3:1560C,3  
 Hurle, I. R. 2.3:2800B-S  
 Hurley, Richard B. 2.3:1560A,5,16  
 Husky, Harry D. 2.3:100A,13  
 Hutarew, Georg 2.3:1370C,2  
 Hyde, Claudius G. 2.3:2800B,1  
 Hyzer, William G. 2.3:2200,11  
  
 IAEA 2.3:2300,38;2.3:2400B-S;  
 2.3:2400C,1,5;2.9:P900B,5;2.9:P900C,  
 3,6,11  
 IAF 2.3:1800,5;2.9:P300C,4  
 IAS 2.5:P100A,8;2.9:P300A,11  
 IBA 2.2:B200,10  
 ICC 2.2:B200,1;2.9:P200,15  
 ICF 2.1:A700,15  
 ICI 2.9:P830C,1  
 ICP UAE 2.3:2300,30  
 ICVT 2.9:P1200A,9  
 Idrac, J. 2.3:1200C,2  
 IE 2.9:P1200B,2  
 IEE 2.1:A100,9;2.3:1400B,5;2.9:P100,9;  
 2.9:P530,2  
 IEE (Japan) 2.9:P530,1  
 IEEE 2.2:B100,2,17;2.2:B200,7;  
 2.9:P530,1,11,14;2.9:P730,2,5;  
 2.9:P750,1,7  
 IES 2.3:P830B,4;2.3:2100A,12  
 IF 2.1:A700,10  
 IFAC 2.2:B200,2;2.3:1300A,10  
 IFIP 2.3:1400B,4  
 IGT 2.1:A700,5  
 II 2.8:Pa300,7  
 IIS 2.9:P1600,1  
 Illinois 2.3:1400A,10;2.3:1570,2  
 IM 2.1:A700,3  
 IME 2.9:P1200B,1  
 IMEKO 2.3:1200C,4  
 Indiana 2.9:P400,11  
 Ingle, M. J. 2.3:1800,16  
 Ingraham, M. C. 2.3:2400A,2  
 INSBK 2.9:P900D,2  
  
 Institut National de la Propriete  
 Industrielle 2.8:Pa100,6,12  
 Institute of High Speed Mechanics  
 2.9:Pl450D,6  
 Institution of Telecommunication  
 Engineers 2.9:P700,12  
 Instituto de Geofisica 2.9:P1000D,2  
 Instituto Nazionale di Ottica  
 2.9:P830C,7  
 Interkama 2.5:D100C,4  
 Interlingua 2.2:B100,7  
 International Fine Technics Assoc.  
 2.9:P100B,4a  
 Interpas 2.8:Pa300,1,13,15  
 Ioffe, Abram F. 2.3:1550D,1,4  
 IP 2.1:A400,2;2.3:1270,13;2.3:1550C,2;  
 2.3:2130,14;2.3:2500A,4;2.9:P100B,1;  
 2.9:P1150B,1  
 IPI 2.1:A200,3;2.9:P250A,5;2.9:P500,  
 13;2.9:P600A,3;2.9:P1150A,7  
 IRAM 2.9:P1550,1  
 Irani, Riyad R. 2.3:1900A-S2  
 IRE 2.1:A300,5;2.3:1400A,9;2.3:2400A,  
 6;2.9:P200,11;2.9:P530,4,11;  
 2.9:P730,2  
 IRE (Australia) 2.9:P730,16  
 IRI 2.9:P1200D,3  
 IRS 2.7:I100,6  
 ISA 2.3:1200A,5;2.3:1230A,3;2.3:1270,  
 5,20;2.3:1300A,10;2.3:2800A,6;  
 2.3:3200A,2;2.3:3700-S;2.5:D100A,18;  
 2.9:P100A,6;2.9:P100D,1;2.9:P250D,5;  
 2.9:P1300,9;2.9:P1330,14  
 Isaacs, John D. 2.3:1270,17  
 IScI 2.2:B400A,3  
 ISI 2.9:P1550,11  
 ISO 2.3:1230C,3  
 ISTI 2.1:A100,1  
 ITC 2.2:B100,10  
 I Tel Tel 2.3:1700A,13;2.3:1800,2  
 ITT 2.1:A700,1  
 ITU 2.9:P700,5  
 IUC 2.3:2100C,10  
 IUPAC 2.3:2800A,16  
 IVA 2.1:A600,2;2.3:1200C,7  
 Ives, David J. G. 2.3:1630B,3  
 Ivey, Henry F. 2.9:P600A,7  
 IWBATEM 2.1:A300,10  
 IWMA 2.9:P1500,2



### 3. Author Index (Cont.)

- Jackson, Leonard C. 2.3:2800A,15  
 Jackson, R. M. 2.3:3000A,7  
 Jackson, Willis 2.3:1400B,5  
 Jacob, Caius 2.3:3000C,4  
 Jacobi, G. T. 2.3:1300A,5  
 Jaeckel, Rudolf 2.3:2500C,2,8  
 Jaeger, John C. 2.3:2900A,17  
 Jaeger, R. 2.3:1330C,4  
 Jakosky, Jay J. 2.3:1900,11  
 James, Henry D. 2.3:1330A,6  
 James, Hubert M. 2.3:2300,25  
 James, R. W. 2.3:2130,17  
 James, Walter H. 2.3:2900A,15  
 Jamieson, John A. 2.3:2800A,4  
 Janz, George J. 2.3:1630B,3  
 Japanese Patent Office 2.8:Pa100,11  
 Jasik, Henry 2.3:1000A,18  
 JCL 2.1:A700,4  
 Jeffers, Karl B. 2.3:2000,1  
 Jeffries, R. J. 2.3:1200A,11  
 Jellinghaus, Werner 2.3:1600C,6  
 Jensen, Jorgen 2.3:1830A,16;  
     2.3:1800,54  
 Jerger, J. J. 2.3:1800,17  
 Jernkontorets 2.1:A700,7  
 Jervis, M. W. 2.3:2400B,2  
 John, Siegfried 2.3:1200C,5  
 Johnson, D. P. 2.3:2500A,5  
 Johnson, R. R. 2.3:3000A,7  
 Johnson, V. A. 2.3:1900,3  
 Jona, Franco 2.3:1730A,10  
 Jones, D. D. 2.3:1730B,3  
 Jones, Ernest B. 2.3:1200A,9  
 Jones, Franklin D. 2.3:2900A,3  
 Jones, George A. 2.3:2200,1  
 Jones, Peter B. 2.3:2400A-S  
 Jones, Richard W. 2.3:1330A,12  
 Jones, Stacy V. 2.3:3500-S1  
 Jonscher, A. K. 2.3:1550A,4  
 JPL 2.1:A600,12  
 JPRS 2.2:B400D,1,5;2.3:1300D,3  
 JSASS 2.9:P300D,1  
 JSME 2.3:1300D,2;2.9:P1200D,4  
 JSTM 2.3:3600,12  
 Judge, Arthur W. 2.3:1200B,1  
 Jupnik, Helen 2.3:2170,11  
 Juran, J. M. 2.3:1000A,10  
 Jury, Eliahu I. 2.3:1330A,2  
 Juvet, R. S. 2.3:3200A,1  
 Kahan, T. 2.3:1770C,2  
 Kallen, Howard P. 2.3:1200A,2;  
     2.3:1300A,8  
 Kammerlingh Onnes Laboratory  
     2.9:P800,7  
 Karadimov, Simeon 2.3:3400D,8  
 Karelitz, M. B. 2.3:2300,26  
 Karpinski, F. 2.3:1330C,6  
 Karplus, Walter J. 2.3:1430A,6,10  
 Kastler, D. 2.3:2900C,2  
 Katz, Harold W. 2.3:1630A,2  
 Kauderer, Hans 2.3:2900C,18  
 Kay, Desmond 2.3:2170,20  
 Kazan, B. 2.3:1400A,8  
 Keery, W. J. 2.3:1730A,5  
 Keitz, H. A. E. 2.3:2100C,1  
 Kemler, Emory N. 2.2:B200,4  
 Kempthorne, Oscar 2.3:1100,5  
 Kent, Allen 2.3:1400A-S1  
 Kent, F. L. 2.7:1100,4  
 Kent, F. W. 2.3:2100C,13  
 Keonjian, Edward 2.3:1570-S  
 Kerchner, Russell M. 2.3:1630A,5  
 Kerr, Donald E. 2.3:2300,13  
 Kessler, Claus 2.3:1430C,2  
 Kheiker, D. M. 2.3:2300-S3  
 Kieffer, H. 2.3:1230C,3  
 Kienzle, O. 2.3:3500,1  
 Kim, K. Y. 2.3:3000A-S  
 Kingery, W. D. 2.3:2800A,3,17  
 Kinnard, Isaac F. 2.3:1530A,10  
 Kinsler, Lawrence E. 2.3:2600,1  
 Kirkpatrick, Sidney D. 2.3:1000A,1  
 Kirschbaum, H. 2.3:1770A,8  
 Kitov, Anatolin I. 2.3:1400D,2  
 Klamt, Johannes 2.3:1600C,1  
 Kleen, Werner 2.3:1730C,2  
 Klein, M. 2.3:3700,4  
 Klemperer, O. 2.3:2170,4  
 Klinder, F. 2.3:1530C,5  
 Klingler, Rudolf 2.3:2900C,19  
 Kloeffer, Royce G. 2.3:1370A,9  
 Kment, V. 2.3:2300,46  
 Kneller, Eckart 2.3:1600C,2  
 Knipp, Julian K. 2.3:2300,7  
 Knodel, Walter 2.3:1400C,3  
 Knoll, Max 2.3:1400A,8;2.3:1530C,10  
 Knowlton, Archer E. 2.3:1000A,4  
 Koch, Jacobus 2.3:1230C,1  
 Koch, K. M. 2.3:1550C,7



### 3. Author Index (Cont.)

- Koelle, Heinz H. 2.3:1830A,5  
 Koenig, Herman E. 2.3:2900A,19  
 Kohl, Jerome 2.3:2300,31  
 Kohler, Horst 2.3:2200,13  
 Kolodkine, P. 2.3:2300,44  
 Kolthoff, Izaak M. 2.3:3200A,23  
 Konig, Albert 2.3:2200,13  
 Kono, Tokoyushi 2.2:B300,7  
 Kopfermann, Hans 2.3:2400C,6  
 Koppelman, F. 2.3:1230C,6;2.3:1670,1  
 Kork, Jyri 2.3:1830A,16; 2.3:1800,54  
 Korn, G. A. 2.3:1000A,13  
 Korn, Granino M. 2.3:1430A,18  
 Korn, Theresa M. 2.3:1430A,18  
 von Korshenewsky, Nicolai 2.3:1700C,11  
 Kortavykh, V. F. 2.3:1730D,5  
 Kortum, G. 2.3:3300,11  
 Korwien, Hanns 2.3:1230C,15  
 Kosow, Irving L. 2.3:1770A,9  
 Kotzebue, K. L. 2.3:1550A,2  
 Kozesnik, Jaroslav 2.3:1400C,8  
 Kraft, J. D. 2.3:1800-S4  
 Krageloh, E. 2.3:3600,8  
 Kratz, L. 2.3:1230C,8  
 Kraus, H. L. 2.3:1700A,1  
 Krautkramer, Herbert 2.3:2600,21;  
 2.3:3600,16  
 Krautkramer, Josef 2.3:2600,21;  
 2.3:3600,16  
 Kret, David B. 2.3:1230A,7  
 Kretzmann, R. 2.3:1500,22  
 Krill, Arthur M. 2.3:1800,12  
 Krinitskii, N. A. 2.3:1400D,2  
 Kroenert, Josef 2.3:1000C,5  
 Kromer, H. 2.3:1560C,5  
 Krugman, Leonard 2.3:1560A,2  
 Kruse, Paul W. 2.3:1770A,2  
 Ku, Y. H. 2.3:1370C,4;2.3:1600A,4;  
 2.3:1630A,9  
 Kuhlmann, N. E. 2.8:Pa200,4,9  
 Kuhn, A. 2.3:2300,46  
 Kuhn, William E. 2.3:1900A-S1  
 Kuo, B. C. 2.3:1370A,12  
 Kyushu 2.9:Pl200D,1  
 Lafferty, J. M. 2.3:2500A,1  
 Lafosse, M. 2.3:1600C,9  
 Lafuze, David L. 2.3:1630A,4  
 Lago, Gladwyn V. 2.3:1670,3  
 LaJoy, M. H. 2.3:1370A,4  
 Lancaster, O. E. 2.3:1800,7  
 Lanczos, Cornelium 2.3:2900A,1  
 Landee, Robert W. 2.3:1000A,15  
 Landolt-Bornstein 2.3:1000C,10  
 Lane, Cecil T. 2.3:3000A,18  
 Langbein, Rudolf 2.3:1630C,3  
 Lange, F. H. 2.3:1570,5  
 Lange, Norbert A. 2.3:100A,21  
 Langer, Rudolph E. 2.3:1700A,6  
 Langford-Smith, Fritz 2.3:1000B,3  
 Langmuir, David B. 2.3:1500,3  
 Laporte, H. 2.3:2800C,8  
 Lapp, Ralph E. 2.3:2400A,11  
 Lark-Horowitz, K. 2.3:1900,3  
 Laronde, M. 2.3:3000D,2  
 Larson, C. A. 2.3:3000A,7  
 Lauber, R. 2.3:1430C,6,S  
 Lauer, Henri 2.3:1330A,7  
 Lauher, V. A. 2.3:3200A,13  
 Laurila, Simo 2.3:1570,8  
 Laurmann, J. A. 2.3:3000A,3  
 Lavine, Irvin 2.7:Il00,6  
 Lawrence, H. R. 2.3:1800,7  
 Lawson, J. L. 2.3:2300,24  
 Lawson, W. D. 2.3:1530B,3  
 Lax, Benj. 2.3:1730A,18  
 LC 2.2:B100,6;2.2:B300,2,3,9;2.6:G100,  
 10;2.6:G300,3,5;2.7:Il00,10;2.7:I300,  
 1,3,4,6  
 League of Nations 2.7:Il00,1  
 Lebacqz, J. V. 2.3:2300,5  
 Leck, J. H. 2.3:2500A,4  
 Lederer, Edgar 2.3:3200C,3  
 Lederer, Michael 2.3:3200C,3  
 Ledgerwood, Byron K. 2.3:1300A,2;  
 2.3:1330A,11  
 Ledley, Robert S. 2.3:1430A,5  
 Lee, L. K. 2.3:1530B,9  
 Leeds-Northrup 2.2:B100,15  
 Lees, L. 2.3:1800,7  
 Lees, Sidney 2.3:1200A,16  
 Legal, J. 2.3:2900C,1  
 Le Galley, Donald P. 2.3:1830A,4  
 Leinweber, Paul 2.3:3500,1  
 Leitner, A. 2.3:1000C,7  
 Lengyel, Bela A. 2.3:2100A,4  
 Leondes, C. T. 2.3:1300A,16;2.3:1330A,  
 10

### 3. Author Index (Cont.)

- Leonhard, A. 2.3:1300C,5  
 Lepretre, Robert 2.3:1730C,16  
 Lesnick, R. N. 2.3:1330A,7  
 Lever, Arnold E. 2.3:3600,1  
 Levine, Daniel 2.3:1770A,10  
 Lewis, Bernard 2.3:1800,7;2.3:2800B,5  
 Lewis, Ian A. D. 2.3:1500,18;  
     2.3:2700,2  
 Lewis, Walter W. 2.3:1600A,2  
 Leybold 2.3:2500C,2  
 Leymonie, C. 2.3:3300,9  
 Lhoste, G. 2.3:1400C,5  
 Licht, Sidney H. 2.3:3400A,21  
 Liebermann, David 2.3:3000D,3  
 Likhtman, V. I. 2.3:3300,3  
 Lin, C. C. 2.3:1800,7  
 Lindorf, H. 2.3:2800C,2  
 Lingane, J. J. 2.3:3200A,23  
 Linvill, John C. 2.3:1560A,14  
 Lion, K. S. 2.3:1230A,16  
 Lissner, H. R. 2.3:1230A,11  
 Livanov, Mikhail N. 2.3:3400D,2  
 Livingood, John J. 2.3:2400A,1  
 LKB 2.9:P170,3  
 Llewellyn-Jones, Frank 2.3:1600B,1  
 Lo, Arthur W. 2.3:1560A,8  
 Locke, A. S. 2.3:1800,17  
 Loemann, D. 2.3:2200,10  
 Losev, D. P. 2.3:1330D,2  
 Louisell, William H. 2.3:1530A,13  
 Lowe, Fritz 2.3:3400C,1  
 Lukens, H. R. 2.3:2300,31  
 Lukomskaya, A. M. 2.2:B400D,4  
 Lurch, E. Norman 2.3:1500,23  
 Lynch, William A. 2.3:1500,17  
 Lyntel, Allen H. 2.3:2100A-S2  
 Lynton, Ernest A. 2.3:1670-S  
 Lyons, J. W. 2.3:3000A-S  
 Lytel, Allan 2.3:1500,2  
  
 MacDonald, David K. C. 2.3:2800A,1;  
     2.3:2900B,5  
 Machei, Bruno 2.3:1370A,3  
 Machol, R. E. 2.3:1300A,3  
 Mackenzie, J. D. 2.3:2800B,4  
 Macmillan, R. H. 2.3:1300B,1  
 MacNichol, Edward F. Jr. 2.3:2300,20  
 Macomber, George R. 2.3:1800-S2;  
     2.3:1830A,10  
 MacRae, Duncan Jr. 2.3:2300,21  
  
 Magarshak, B. G. 2.3:1600D  
 Magne, P. 2.3:1500,18  
 Magnon, C. 2.3:2170,18  
 Maitre, A. 2.3:1230B,6  
 Makaelyan, A. L. 2.3:1770D,1  
 Malone, Thomas F. 2.3:2000,8  
 von Mangoldt, W. 2.3:1000C,1;2.3:1300C,7  
 Manning, L. A. 2.2:B300,10;2.2:B400A,7  
 Mannino-Patane, G. 2.3:1500,11  
 Mantell, Charles L. 2.3:1000A,7  
 Marconi 2.9:P730,1;2.9:P770,3  
 Marconi Instruments 2.9:P170,1  
 Marcus, Mitchell P. 2.3:1630A,3  
 Marcuvitz, Nathan 2.3:2300,10  
 Marechal, A. 2.3:2100C,5  
 Mariner, P. F. 2.3:1700A,11  
 Markle, Lewis E. 2.3:1330A,6  
 Markus, John 2.3:1300A,6;2.3:1330C,5  
 Marr, Eleanor B. 2.6:G200,5  
 Marsden, C. P. 2.3:1730A,5  
 Martin, A. V. J. 2.3:1560C,4  
 Martin, Louis C. 2.3:2100B,1  
 Marton, C. 2.2:B300,1  
 Marton, L. 2.3:1900,3  
 Maryland 2.2:B400A,10  
 Mason, Clyde W. 2.3:3200A,22  
 Mason, Samuel J. 2.3:1530A-S;  
     2.3:1570,7  
 Mason, Warren P. 2.3:1630A,1;  
     2.3:2600,3  
 Massey, H. S. W. 2.3:1570,1  
 Massie, Edw. 2.3:3400A,20  
 Massonnet, C. 2.3:3600,15  
 Masterson, L. E. 2.3:1330A,7  
 Maughan, G. I. 2.2:B200,9  
 Maunder, Leonard 2.3:2900B,4  
 Mayer, Robert W. 2.3:1300A,15;  
     2.3:1330A,4  
 Mayer-Kaupp, H. 2.3:3300,11  
 Mayo-Wells, W. J. 2.3:1830A,11  
 MB 2.9:P1550,17  
 MBLE 2.9:P600C,5  
 McAllister, A. S. 2.3:3700,3  
 McClintock, R. M. 2.2:B400A,1  
 McClure, Connie L. 2.3:1830A,21  
 McCorkle, W. H. 2.3:2400A,2  
 McFee, R. H. 2.3:2800A,4  
 McGill, D. A. C. 2.3:1400A,11  
 McGlauchlin, L. D. 2.3:1770A,2  
 McIntyre, R. L. 2.3:1370A,10  
 McKay, Walter 2.3:1200A,16

### 3. Author Index (Cont.)

- McKenzie, A. A. 2.3:2300,4  
 McKinley, James L. 2.3:1830A,12,19  
 McMaster, Robert C. 2.3:3600,14  
 McQuistan, R. B. 2.3:1770A,2  
 Mead, H. J. 2.3:1700B,2  
 Mees, C. E. K. 2.3:2200,2  
 Meetham, A. R. 2.3:1100,8  
 Meghreblian, Robert V. 2.3:2400A,12  
 Meinke, H. 2.3:1700C,2  
 Mellon, M. Guy 2.3:2130,5;2.6:G200,6  
 de Mende, S. 2.3:3200C,4  
 Mentzer, J. R. 2.3:1500,18  
 Merrill, G. 2.3:1800,17  
 Merritt, L. L. Jr. 2.3:2100A,11  
 Meshchenskii, Rostislav 2.3:3400D,6  
 Mesritz, A. D. 2.3:1630C,S  
 Messiah, A. 2.3:2900C,3  
 Meyer, Erich A. H. 2.3:1630C,7  
 Meyer-Eppler, W. 2.3:1300C,10  
 Meyerhoff, Albert J. 2.3:430A,17  
 M-H 2.9:P170,10  
 Mialki, Werner 2.3:2400C,7  
 Michel, A. 2.3:2100C,13  
 Michel, Kurt 2.3:2200,10  
 Michels, Walter C. 2.3:1600A,9  
 Michelson, I. 2.3:1800,17  
 Michiels, J. L. 2.3:1700C,9  
 Mich.State Col. 2.3:1200A,11;2.3:3400A,2  
 Middlebrook, R. D. 2.3:1560,S1  
 Middleton, David 2.3:1700A,2  
 Middleton, Robert G. 2.3:1530A,2,17  
 Middleton, W.E.K. 2.3:1270,12;2.3:2000,6  
 Mikklin, Solomon G. 2.3:1900,1  
 Mikolajczyk, Pjotr 2.3:1560D,2  
 Mileaf, Harry 2.3:1500,14  
 Miller, A. R. 2.3:2800A,2  
 Miller, J. R. 2.3:1560A,4  
 Miller, R. E. 2.3:1300A,11  
 Milligan, W. 2.3:2300,45  
 Minder, Walter 2.3:2300,33  
 Ministero dell'Industria e Commercio  
 2.8:Pa100,15  
 Minorsky, Nicholas 2.3:3100,12  
 Mirskii 2.3:1530D,S4  
 von Mises, Richard 2.3:3000A,9  
 Mishkin, Eli 2.3:1370A,2  
 MIT 2.3:1330A,13;2.3:1530A,6,7;  
 2.3:1800,9;2.3:2300,28;2.3:2800A,17;  
 2.3:3100,9;2.4:D,4;2.9:Pl400,12  
 Mitsubishi Electric Co. 2.9:P570,1  
 Moerder, Curt 2.3:1630C,7  
 Moffitt, J. K. 2.3:1730A,5  
 Mohrhardt, F. E. 2.6:G200,S  
 Monch, Ernst 2.3:2100C,16  
 Monch, Guenther 2.3:2500C,3  
 Monk, G. S. 2.3:2400A,2  
 Monteil, C. 2.3:1300C,6  
 Montgomery, C.G. 2.3:2300,8,11,14  
 Moon, Parry H. 2.3:1900,6  
 Moore, C. K. 2.2:B300,5;2.2:B400B,2  
 Morand, Max 2.3:2500C,7  
 Morgan, Russell H. 2.3:3400A,18  
 Morgenstern, Dietrich 2.3:2900C,15  
 Morley, Derek W. 2.3:1400B,1  
 Morrison, R. B. 2.3:1800,16  
 Morrow, Charles T. 2.3:3100,S  
 Morse, Philip M. 2.3:1100,2  
 Morton, G. A. 2.3:2170,12  
 Moser, H. 2.3:2130,2  
 Moss, T. S. 2.3:1550B,1  
 MPI 2.2:B400C,7  
 MRI 2.9:P770,7  
 Muirhead and Co., Ltd. 2.9:P170,7  
 von Munche, W. 2.3:1560C,5  
 Murray, Francis J. 2.3:1430A,12  
 Mutter, E. 2.3:2200,10  
 NACA 2.9:P300A,13  
 NACE 2.1:A600,2  
 Nadai, Arpad 2.3:2900A,21  
 Nadler, Morton 2.3:1500,18  
 NAS 2.9:P1600,13  
 NASA 2.1:A300,11;2.1:A600,4,16;  
 2.3:2000,9;2.9:P300A,13  
 Naslin, P. 2.3:1230C,5;2.3:1400C,2  
 NAS-NRC 2.1:A300,8;2.1:A700,2;  
 2.3:1270,17;2.3:1400A,3;2.3:1830A,14;  
 2.4:D,7;2.6:G100,3,4;2.6:G300,1;  
 2.7:I200,5;2.9:Pl400,10;2.9:Pl000A,2;  
 2.9:Pl050,18  
 Nauk 2.1:A100,8;2.2:B200,11;2.2:B300,6;  
 2.2:B400D,2,4;2.3:1400D,2,S;2.3:1430D,  
 3;2.3:1550D,1,2,4,5;2.3:1770D,2;  
 2.3:1830D,2;2.3:2170,10;2.3:2400D;  
 2.3:3300,3;2.3:3400D,4;2.9:P250D,5;  
 2.9:P300D,3;2.9:Pl400D,2;2.9:P800,6;  
 2.9:830D,2;2.9:P870,7;2.9:Pl000D,5,7  
 2.9:Pl050,18;2.9:Pl100D,2,3  
 Naumann, Helmut 2.3:2100C,19  
 NAVORD 2.3:2600,13



### 3. Author Index (Cont.)

- NBS 2.2:B100,3,13,16,18,19;2.2:B300,  
 1;2.2:B400A,1,2,4;2.3:1230A,10;  
 2.3:1500-S;2.3:1600A,8,S;2.3:1730A,  
 5;2.3:2500A,5,7,11,16;2.3:2800A,  
 6,8;2.3:3000A,1;2.3:3200A,5;2.3:3500,  
 7,9,11;2.3:3700,2,3;2.7:I300,11;  
 2.9:P200,7;2.9:P730,11,18;2.9:P1500,  
 8,12;2.9:P1550,8;2.9:P1600,3  
 NCO-TNO 2.9:P1200C,6  
 Nederlands Radiogenootschap 2.9:P730,8  
 Nederlandse Vereniging voor  
 Fijnmechanische Techniek 2.9:P100C,10  
 Neeteson, P. A. 2.3:1560C,8;  
 2.3:1730C,13  
 NEF 2.9:P530,12  
 Neff, H. 2.3:3200C-S  
 Nestler, C. G. 2.3:3300,1  
 Neugebauer, Constantine 2.3:2900A,20  
 Neumann, Hans 2.3:1230C,2;2.3:1630C,4  
 Newell, Homer E. 2.3:1830A,3  
 Newkirk, J. B. 2.3:2900A,20  
 Newman, David 2.3:1800,17  
 NFS 2.9:P1100C,2  
 NFSAIS 2.6:G300,6,7  
 Nichols, Myron H. 2.3:1730A,14  
 Nichols, N. B. 2.3:2300,25  
 NIDR 2.2:B400C,6;2.7:I100,8  
 Niedergall, W. 2.2:B400C,1  
 Nielsen, A. K. 2.3:2600,18  
 Nielsen, Jack N. 2.3:1830A,15  
 Nielsen, S. 2.3:1530B,3  
 Nightingale, Alfred 2.3:3400B,4  
 NIH 2.5:D100A,7  
 Nitzsche, Rudolf 2.3:3600,3  
 Nixon, W. C. 2.3:2170,7  
 NIL 2.7:I300,10  
 NLM 2.1:A100,2  
 Noebels, H. J. 2.3:3200A,20  
 Nogare, Stephen Dal 2.3:3200A,1  
 Nokes, Malcolm C. 2.3:2300,42  
 Nordenberg, Harold M. 2.3:1500,1;  
 2.3:1530B,8  
 Northwestern 2.3:2900A,11  
 Nottingham, Wayne B. 2.2:B300,4  
 Novozhilov, V. V. 2.3:2900D,1  
 NPL 2.9:P1150B,2  
 NRC 2.6:G300,1  
 NRLM 2.9:P1500,3  
 NSF 2.6:G100,7  
 Nurnberg, Werner 2.3:1670,7  
 Nyboer, Jan 2.3:3400A,4  
 NYSEM 2.2:B100,8  
 OAR 2.2:B100,22  
 Odinetz, M. 2.3:1330D,3  
 O'Diselin, C. J. 2.3:1270,17  
 Odishaw, Hugh 2.3:1000A,3  
 Odqvist, Folke K. G. 2.3:3300,12  
 OECD 2.9:P1200C,12  
 Oeser, Werner 2.3:1270,11  
 Oesterreichisches Patentamt 2.8:Pal00,  
 19  
 Oetker, R. 2.3:1300C,7  
 Office for Industrial Property  
 2.8:Pal00,1  
 Office of the Registrar 2.8:Pal00,7  
 O'Keefe, John 2.3:3500,2  
 O'Kelley, G. D. 2.3:1400A,3  
 Okress, E. 2.3:1730A,16  
 Ollendorff, Franz 2.3:1500,24  
 Olson, Harry F. 2.3:2900A,2  
 Olson, W. T. 2.3:1800,7  
 ONERA 2.9:P300C,3  
 ONR 2.3:1300A,5;2.3:1400A,10;  
 2.3:1430A,7,12;2.3:1570,2;2.9:P200,2  
 Oppell, J. B. 2.3:3000A,6  
 Oppelt, Winfried 2.3:1300C,3  
 Ordnung, P. F. 2.3:1700A,1  
 Ordway, Frederick I. 2.3:1830A-S1, S2  
 Orlov, Vladimir V. 2.3:3400D,4  
 ORSA 2.9:P200,5  
 OSA 2.3:2100A,13;2.9:P830A,1,9;  
 2.9:P830D,1  
 Osterburg, H. 2.3:2170,11  
 Oswatitsch, Klaus 2.3:3000C,2  
 OTS 2.1:A100,6,11;2.2:B400D,1;  
 2.3:1230D,1;2.3:1400A,3;2.3:1430A,  
 15;2.3:1730A,9;2.3:2100C,3;  
 2.3:2900D,1;2.6:G200,8;2.7:I300,3,5;  
 2.8:Pa200,3,4,S;2.9:P900D,5  
 Otting, W. 2.3:3300,11  
 Ouziaux, R. 2.3:2900C,5  
 Overhage, Carl F. J. 2.3:1500,9  
 Owens, H. L. 2.3:1560A,7  
 Pai, Shih I. 2.3:2900A,13,18  
 Painter, Christa A. 2.3:2600,16  
 PAL 2.1:A600,7  
 Palm, Albert 2.3:1230C,9;2.3:1630C,8  
 Papin, M. D. 2.3:1000C,6;2.3:3500,13  
 Parke III, Nathan G. 2.6:G200,4



### 3. Author Index (Cont.)

- Parsons, A. R. 2.3:1270,1  
 Partridge, Gordon R. 2.3:1230A,12  
 Parvin, R. H. 2.3:1800,17  
 Patent Office 2.8:Pa100,14  
 Patent Office (Australia) 2.8:Pl00,14  
 Patenttidende, Dansk 2.8:Pl00,2  
 Pattee, H. H. Jr. 2.3:2170,17  
 Patterson, Austin M. 2.6:G200,5  
 Paul, G. 2.3:1730C,10  
 Paul, William 2.3:2500A,12  
 Pavlik, Ernst 2.3:1370A,3  
 Payne, L. D. 2.3:1530A,17  
 Payne, L. M. 2.6:G100-S  
 PDC 2.1:A600,10  
 Pearlstein, Joseph 2.6:G200,8  
 Peiser, H. S. 2.3:2100B,9  
 Pelczewski, W. 2.3:1330D,1  
 Pelegrin, M. 2.3:1300C,8;2.3:1430C,3  
 Pender, Harold 2.3:1000A,24  
 Penescu, C. I. 2.3:1300D,9  
 Penfield, Paul, Jr. 2.3:1530A,6  
 Penn 2.3:1670,19  
 Penn. State Univ. 2.2:B400A,6  
 Pepe, P. 2.3:1400C,5  
 Pericorne, L. 2.3:1560C,6  
 Perkins, C. D. 2.3:1800,4  
 Perlat, A. 2.3:2100A,2  
 Perrier, J. 2.3:2900C,5  
 Perry, Charles C. 2.3:1230A,11  
 Perry, Robert H. 2.3:1000A,1  
 Persoz, B. 2.3:3000C,3  
 Peskin, Edward 2.3:1670,4  
 Peters, Johannes 2.3:1370C,1  
 Petit, M. 2.3:2100A,2  
 Petitclerc, A. 2.3:1550C,5  
 Pettit, J. M. 2.3:1500,12  
 Peuteman, A. 2.3:1330C,7  
 Pfeiffer, Paul E. 2.3:1570,9  
 Pflieger, Paul M. 2.3:1230C,11,14  
 Philippow, E. 2.3:1700C,3  
 Philips 2.3:1230C,1;2.3:1550C,8;  
 2.3:1730C,13;2.3:2100C,1;2.9:P170,  
 11;2.9:P570,10;2.9:P600C,6,11;  
 2.9:P700,13,15;2.9:P1150C,1  
 Phillips, J. P. 2.3:3200B,3  
 Phillips, Ralph S. 2.3:2300,25  
 Phister, Montgomery Jr. 2.3:1430A,3  
 Photoelectric and Spectrometry Group  
 2.9:P830B,9  
 Physical Society 2.9:P1100B,1  
 Pierce, John A. 2.3:2300,4  
 Pierce, John R. 2.3:1530A,21;  
 2.3:1770A,1  
 Pietsch, H. 2.5:D100C,4  
 Pinsker, Z. G. 2.3:2170,16  
 Pinta, M. 2.3:3200C,7  
 Pirani, M. 2.3:2500B,3  
 Pitman, George R. Jr. 2.3:1270,2  
 Pitsch, Helmut 2.3:1700C,10  
 PL 2.3:2900B,3  
 Plass, G. N. 2.3:2800A,4  
 Polgar, Claude 2.3:1330C,8  
 Polish Academy of Sciences 2.3:1730D,6  
 Pollak, L. W. 2.3:1900,9  
 Pollard, Ernest C. 2.3:3400A,16  
 Polydoroff, W. J. 2.3:1600A,6  
 Popov, Evgenii P. 2.3:1300D,4,11  
 Popplewell, Cicely M. 2.3:1400B,4  
 Poschl, Hermann 2.3:2900C,13  
 POSL 2.8:Pa200,4,9;2.8:Pa400,1  
 Post Office Electrical Engineers  
 2.9:P730,17  
 Potter, N. S. 2.3:1800,17  
 Pound, Robert V. 2.3:2300,16  
 Povejsil, Donald J. 2.3:1730A,8;  
 2.3:1800,17  
 Prandtl, Ludwig 2.3:3000B,2  
 Prensky, Sol D. 2.3:1530A,14  
 Pressman, A. I. 2.3:1430A,13  
 Priester, Wolfgang 2.3:1800,S3;  
 2.3:1830A,22  
 Princeton 2.3:3400A,17  
 Pringsheim, Peter 2.3:2100A,14  
 Probststein, R. F. 2.3:3000A,16  
 Profos, Paul 2.3:1370C,6  
 PS 2.1:A400,2;2.5:D100B,2;2.9:P1100B,1  
 PS (Japan) 2.9:P1100D,7  
 PSAC 2.6:G100,12  
 PTB 2.9:P1500,7  
 PTT 2.9:P730,6  
 Puckett, Allen E. 2.3:1830A,2  
 Puerschner, K. 2.3:1630A,7  
 Pupp, Wolfgang 2.3:2500C,5  
 Purcell, Edward M. 2.3:2300,8  
 Purdue 2.4:D,3  
 Purnell, Howard 2.3:3200A,21  
 Purves, Frederick 2.3:2200,4  
 Quinet, J. 2.3:1530C,13

### 3. Author Index (Cont.)

- Rabinowicz, E. 2.3:3200A,54  
 Raby, K. F. 2.3:1100,7  
 Radix, J. C. 2.3:1830C  
 Rae, William N. 2.3:3200A,19  
 RAeS 2.9:P300B,1  
 Rafuse, R. P. 2.3:1530A,6  
 Ragan, George L. 2.3:2300,9  
 Raievski, V. 2.3:2400C,3  
 Raimes, Stanley 2.3:3300,2  
 Raizer, Yu. P. 2.3:2300,S6  
 Ramat, G. 2.3:2900C,7  
 Ramberg, E. G. 2.3:1670,13;2.3:1770A,  
 3;2.3:2170,12  
 Ramo, Simon 2.3:1300A,12;2.3:1830A,2  
 Rand 2.3:1830A,6  
 Randall, Jas. E. 2.3:1200A,6  
 Rapaport, H. 2.3:1770A,11  
 Rapuzzi, Ann E. 2.3:3700,3  
 RAS 2.9:P1000B,1  
 Rastorguev, L. N. 2.3:3300,S  
 Ratoosh, Philburn 2.3:3500,5  
 Rauch, L. L. 2.3:1730A,14  
 Rauen, H. M. 2.3:3300,11  
 Ravalico, D. E. 2.3:1730C,6  
 Raven, Robert S. 2.3:1730A,8  
 RCA 2.3:1000B,3;2.3:1530A,18;  
 2.3:1670,19;2.9:P730,4  
 Rebinder, P. A. 2.3:3300,3  
 Redwood, Martin R. 2.3:1730A,22  
 Reethof, Gerhard 2.3:3000A,12  
 Reich, Herbert J. 2.3:1630A,12;  
 2.3:1700A,1  
 Reichert, Georg 2.3:3600,10  
 Reilley, Charles N. 2.3:3200A,7  
 Reilly, Joseph 2.3:3200A,19  
 Reimann, A. L. 2.3:2500B,1  
 Reimer, Eduard 2.8:Pa300,11  
 Reimer, Ludwig 2.3:2170,6  
 Reinbach, R. 2.3:1550C,7  
 Reiner, Markus 2.3:3000A,4,17  
 Reiter, Elmar R. 2.3:2100A,1  
 Research Assoc'n in Production  
 Engineering 2.9:P450D,3  
 Rhys, Jack 2.3:3600,1  
 RIAM 2.9:P450D,9  
 Richards, O. W. 2.3:2170,11  
 Richards, R. G. 2.3:2800A,4  
 Richards, R. K. 2.3:1430A,14  
 Richardson, Edward G. 2.3:2600,5,19  
 Richardson, K. I. T. 2.3:2900B,3  
 Richter, Heinz 2.3:1530C,9;  
 2.3:1560C,1;2.3:1570,3  
 Richter, Otto 2.3:2900C,11  
 Riddle, Robert L. 2.3:1560A,13  
 Ridenour, Louis N. 2.3:1900,4;  
 2.3:2300,1,28  
 Rideout, Vincent C. 2.3:1730A,12  
 Rider, John 2.3:1530A,1,15  
 Riegel, E. R. 2.3:3200A,9  
 RILEM 2.9:P1400,5  
 Riordan, John 2.3:1330A,8  
 Rips, R. E. 2.7:I300,9  
 Ristenbatt, M. P. 2.3:1560A,13  
 RMIS 2.9:P830B,3  
 RMS 2.9:P1050,8  
 Robert, J. 2.3:1430C,7  
 Roberts, Arthur D. 2.3:2300,3;  
 2.6:G100,1  
 Roberts, J. K. 2.3:2800A,2  
 Roberts, Richard W. 2.3:2500A,S  
 Robertson, J. M. 2.9:P700,16,17,18  
 Robichaud, L. P. A. 2.3:1430C,7  
 Robstein, Ronald F. 2.3:3000D,1  
 Rogers, A. E. 2.3:1430A,4  
 Rollwagen, W. 2.3:3300,11  
 Rooksby, H. P. 2.3:2100B,9  
 Rossi, B. B. 2.3:2400A,2  
 Rossini, Frederick D. 2.3:1800,7;  
 2.3:2800A,16,18  
 Rossoff, A. L. 2.3:1560A,18  
 Roth, Heinz 2.3:1230C,9,16  
 Rothe, Edmond 2.3:2000,4  
 Rothe, J. P. 2.3:2000,4  
 Rouse, Hunter 2.3:2900A,16  
 Royds, Robert 2.3:2800B,3  
 RPS 2.1:A700,9;2.9:P830B,7,8  
 RSL 2.9:P1600,15  
 RTI 2.1:A300,11  
 Rüdtenberg, R. 2.3:1600C,S  
 Rudinger, George 2.3:3000A,15  
 Ruiter, Jacob H., Jr. 2.3:1530B,6  
 Runge, W. T. 2.3:1700C,11  
 Rurukawa Electric Co. 2.9:P570,9  
 Rusche, Georg 2.3:1560C,9  
 Rush, Philip 2.3:3500,2  
 Ruthardt, K. 2.3:3300,11  
 Ryder, E. A. 2.3:2800A,5  
 Ryvkin, S. M. 2.3:1550D,S3  
 SAA 2.9:P1550,12

### 3. Author Index (Cont.)

Sabathe, P. 2.3:2600,13a  
 SAC 2.1:A500,3  
 SAE 2.9:P1200A,1  
 Sage, B. H. 2.3:3000A,6  
 Sagel, K. 2.3:3300,11  
 Salisbury, J. K. 2.3:1000A,26  
 Salow, H. 2.3:1560C,5  
 Samburoff, S. N. 2.3:1830D,1  
 Sammer, F. 2.3:1700C,3  
 Samukawa, T. 2.3:1300D,2  
 Sandretto, Peter C. 2.3:1800,2  
 Sands, M. 2.3:2400A,2  
 Sanford, Raymond L. 2.3:1500,S;  
 2.3:1600A,S  
 Sangren, Ward C. 2.3:1430A,11;  
 2.3:2400A,10  
 Sarbacher, Robert I. 2.3:1000A,22  
 SAS 2.3:2130,19;2.9:P830A,5  
 Sass, F. 2.3:1000C,7  
 Savant, C. J. Jr. 2.3:1330A,5;  
 2.3:1800,11  
 Savidan, M. 2.3:3200C,5  
 Scaff, J. H. 2.3:1560A,3  
 Scarborough, James B. 2.3:2900A,6  
 Schaaffs, Werner 2.3:2600,17  
 Schack, Alfred 2.3:2800C,6  
 Schiott, H. 2.3:2900C,9  
 Schlegel, H. R. 2.3:1560C,2  
 Schlitt, Herbert 2.3:1400C,7;  
 2.3:1700C,1  
 Schlosser, E. G. 2.3:1230C,9,16  
 Schmeckebier, Laurence F. 2.6:G100,13  
 Schmiedel, Karl 2.3:1230C,13  
 Schneider, E. E. 2.3:2400C,6  
 Schneider, Rudolf 2.3:1230C,10  
 Schoenert, K. 2.3:3300,10  
 Schram, Eric 2.3:2300,S1  
 Schreiber, H. 2.3:1730C,1  
 Schroeder, Robert 2.3:2100C,17  
 Schröter, F. 2.3:1730C,S  
 Schuettler, C. L. 2.2:B400A,11  
 Schultz, H. L. 2.3:1900,3  
 Schwartz, Seymour 2.3:1550A,3  
 Schweitzer, Helmut 2.3:1770C,7  
 Schweizerisches Patentamt 2.8:Pa100,9;  
 2.8:Pa200,7  
 Schwerdtfeger, Werner 2.3:2300,40  
 Schwidefsky, Kurt 2.3:2200,12  
 Schwier, K. 2.3:2800C,3  
 Scoff, J. H. 2.3:1560A,12  
 Scott, Norman R. 2.3:1430A,1  
 Scott, Thomas R. 2.3:1560B,1  
 Seaman, William 2.3:3200A,18  
 Sears, W. R. 2.3:1800,7  
 Secretaria de Industria y Comercio  
 2.8:Pa100,23  
 Sedov, Leonid I. 2.3:2900D,2  
 SEE 2.9:P530,5  
 Seely, Fred B. 2.3:2900A,14  
 Seely, Samuel 2.3:1530A,19  
 Segre, Emilio 2.3:2400A,4  
 Seifert, Howard S. 2.3:1830A,23  
 Seifert, Wm. W. 2.3:1300A,9  
 Seith, V. I. 2.3:3300,11  
 Sells, S. B. 2.2:B400A,12  
 Selwood, Pierce W. 2.3:3200A,17  
 SEM 2.9:P830D,3  
 Semenov, A. A. 2.3:1770D,S  
 Service de la Propriete Industrielle  
 2.8:Pa100,18  
 SESA 2.9:P450A,1;2.9:P1400,15  
 Seshu, Sundaram 2.3:1600A,3  
 Sesonske, Alexander 2.3:2400A,9  
 Setlow, Richard B. 2.3:3400A,16  
 SFM 2.9:P450C,4  
 SFP 2.5:D100C,6  
 Shaftan, Kenneth 2.3:2200,6  
 Shannon, Claude E. 2.3:1400A,2  
 Shapiro, Ascher H. 2.3:3000A,5  
 Sharp, G. H. 2.3:3500,15  
 Sharpe, M. R. 2.3:1830A,S1,S2  
 Shchukin, E. D. 2.3:3300,3  
 Shea, Richard F. 2.3:1560A,1,11  
 Shearer, J. L. 2.3:3000A,12  
 Shigley, Joseph E. 2.3:2900A,8  
 Shirane, Gen 2.3:1730A,10  
 Shive, John N. 2.3:1550A,1;  
 2.3:1560A,3,12  
 Shmakov, P. V. 2.3:1770D,6  
 Shockley, William 2.3:1550A,7  
 Shoop, Charles F. 2.3:2900A,12  
 Shorr-Kon, J. J. 2.3:2900D,1  
 Shwop, J. E. 2.3:1550A,5  
 SI 2.1:A700,14  
 SIAM 2.3:1330A,8;2.9:P400,1  
 SICF 2.9:P1200C,10  
 Siebel, Erich 2.3:3600,2a  
 Siegbahn, Kai 2.3:2300,36  
 Siemens 2.9:P570,8  
 SIF 2.9:P1150C,2  
 Siff, Elliott J. 2.3:1230A,4  
 Silsbee, Francis 2.3:1600A,8



### 3. Author Index (Cont.)

- Silver, Samuel 2.3:2300,12  
 Simon, H. 2.3:1670,14;2.3:1800,13  
 Singer, Jerome R. 2.3:1730A,17  
 Sinyarev, B. 2.3:1830D,1  
 SIT 2.3:1370A,8;2.9:P100B,4  
 SIT (Japan) 2.9:P100D,2  
 SITA 2.9:P100B,5  
 Sjobbema, D. J. W. 2.3:1560C,10  
 Skakov, Yu. A. 2.3:3300,S  
 Skalnik, J. G. 2.3:1700A,1  
 Skinner, H. A. 2.3:2800A,16  
 Skolnik, Merrill 2.3:1730A,20  
 Skorik, E. T. 2.3:1730D,4  
 Skudrzyk, Eugen 2.3:2600,7  
 SLA 2.6:G100,9;2.7:I300,3  
 Slater, J. M. 2.3:1830A,8a  
 Slawsky, M. M. 2.3:2900A,11  
 Slichter, Charles P. 2.3:1600A,1  
 Smakula, Alexander 2.3:1730C,17;  
 2.3:2100C,15  
 SMF 2.3:2900C,9  
 Smirnov, Gennadii D. 2.3:1430D,1  
 Smit, J. 2.3:1550C,8  
 Smith, Arthur W. 2.3:1600A,10  
 Smith, C. S. 2.3:1900,7  
 Smith, Donald A. 2.3:3400A,14  
 Smith, Ivor 2.3:3200B,2  
 Smith, James O. 2.3:2900A,14  
 Smith, M. L. 2.3:2130,13  
 Smith, Ralph W. 2.3:3500,9  
 Smith, Wm. A. 2.7:I100,4  
 Smith, William V. 2.3:2130,1  
 Smithsonian 2.3:1000A,5  
 SMPTE 2.9:P830A,10  
 Smullin, Louis D. 2.3:1530A,7;  
 2.3:2300,14  
 Snel, D. A. 2.3:2600,15  
 Snell, Arthur H. 2.3:2400A,8  
 Snell, Cornelia T. 2.3:3200A,11  
 SNT 2.9:P1400,1  
 Societe francaise des electriciens  
 2.9:P530,9  
 Societe hydrotechnique de France  
 2.3:2900C,17  
 Societe royale belge des electriciens  
 2.9:P530,3  
 Societe suisse de chronometrie  
 2.9:P100C,8  
 Society of Instrument and Control  
 Engineers 2.9:P100D,4  
 Society of Precision Mechanics  
 2.9:P450D,8  
 Soisson, Harold E. 2.3:1230A,13  
 Sokoll, A. H. 2.2:B400C,5  
 Soller, Theodore 2.3:2300,22  
 Solloway, G. B. 2.3:1800,11  
 Solodovnikov, V. V. 2.3:1300D,3,8,10  
 Soohoo, Ronald F. 2.3:1730A,2  
 SOPRODOC 2.9:P900C,2;2.9:P1300,5  
 Soroka, Walter J. 2.3:1430A,10  
 SOTELEC 2.9:P770,8  
 Sotskov, B. S. 2.3:1300D,1  
 Soubies-Camy, H. 2.3:1400C,1  
 South African Patent Office 2.8:Pal00,  
 Soutif, M. 2.3:3200C,10  
 Soviet Radio 2.3:1730D,1,3,7;  
 2.3:1770D,6  
 SPeE 2.9:P1200A,12  
 Speiser, A. P. 2.3:1430C,1  
 Spencer, D. E. 2.3:1900,6  
 Spencer, Jas. 2.3:1230A,1  
 Spencer, K. J. 2.2:B300,5;2.2:B400B,2  
 Spenke, Eberhard 2.3:1550C,3  
 Sperry 2.9:P170,9;2.9:P1150A,5  
 SPIE 2.3:2200,6;2.9:P100A,3;  
 2.9:P1200A,12  
 Spilhaus, A. E. 2.3:1270,12;  
 2.3:2000,6  
 Spink, J. A. 2.3:2170,16  
 Spink, Leland K. 2.3:3000A,13  
 Spratt, Hector G. M. 2.3:1630B,1  
 SPSE 2.1:A700,12;2.9:P830A,12  
 SRI 2.6:G300,2  
 SSA 2.9:P1050,12  
 SSC 2.9:P130,3  
 SSJ 2.9:P1050,1  
 Stacy, Ralph W. 2.3:3400A,5,8  
 Stamm, W. 2.3:3300,11  
 Stanford 2.2:B300,10;2.2:B400A,7  
 Starr, Merle A. 2.3:2300,22  
 Statensprovvningsanstalt 2.9:1400,9  
 Staub, H. H. 2.3:2400A,2  
 Stearns, Reid F. 2.3:3000A,7  
 Steedman, Hugh F. 2.3:2170,8  
 Steeg, C. W. 2.3:1300A,9  
 Stein, Peter K. 2.3:1230A,5  
 Steinbuch, Karl 2.3:1000C,8;  
 2.3:1300C,4,13;2.3:1400C,6  
 Steinerherz, H. A. 2.3:2500A,13  
 Stewart, H. L. 2.3:1370C,3



### 3. Author Index (Cont.)

- Stille, Ulrich 2.3:1400C,9  
 Stiltz, Harry L. 2.3:1830A,9  
 Stoker, J. J. 2.3:3100,4  
 Stopskii, S. B. 2.3:2600,9  
 Storm, H. F. 2.3:1730A,7  
 Stout, Melville B. 2.3:1600A,11  
 Stratton, P. P. 2.3:2100D  
 Straw, H. 2.3:2130,9  
 Strecker, Felix 2.3:1300C,2  
 Strock, Clifford 2.3:1000A,19  
 Strong, H. M. 2.3:2500A,14  
 Studemann, H. 2.3:3300,6  
 Studer, Jack J. 2.3:1530A,4  
 Stuper, Josef 2.3:2200,10  
 Sturm, B. 2.3:3200C,9  
 von Stutterheim, H. 2.5:D100C,3  
 Styret for det Industrielle Rettsvern  
     2.8:Pa100,21  
 Sucher, Max 2.3:1000A,S  
 Suchet, J. P. 2.3:1550C,6  
 Suhrmann, R. 2.3:1670,14  
 Sullivan, H. J. 2.3:1550A,5  
 Summer, W. 2.3:2100A,3;2.3:2100B,6  
 Summerfield, M. 2.3:1800,7  
 Susini, Alfredo 2.3:1330C,9  
 Susskind, Charles 2.3:1500,25  
 SVMT 2.9:Pl400,11  
 Svoboda, Antonin 2.3:2300,27  
 Sward, G. G. 2.3:3600,2  
 Sweeney, R. J. 2.3:1200A,4  
 Swenne, C. M. 2.3:1530C,3  
 Swift, J. D. 2.3:1530C,S  
 Szabo, I. 2.3:2900C,15  
  
 Taeger, W. 2.3:1730C,10  
 Taft, W. A. 2.3:1700C,3  
 Takahashi, Y. 2.3:1370D,1  
 Talbot, L. 2.3:3000A,3  
 Tanenbaum, M. 2.3:2800A,14  
 Taplin, J. F. 2.3:1300A,4  
 Tatarski, Valerian I. 2.3:1770D,3  
 Taylor, S. R. 2.3:3200A,14  
 TCU 2.2:B400A,12  
 TELE 2.9:P730,12  
 Television Society 2.9:P830B,6  
 Terent'ev, S. P. 2.3:1730D,5  
 Terman, F. E. 2.3:1500,12  
 TERNY, Michel 2.3:2800C,4  
 Thaler, G. J. 2.3:1300A,14;2.3:1330A,1  
 Thalmann, G. 2.3:1530C,11  
 Thewlis, J. 2.3:1100,8  
 Thomas, Gareth 2.3:2170,14;2.3:3300,4  
 Thornton, David L. 2.3:3100,10  
 Thourel, L. 2.3:1730C,5,15  
 Threlkeld, James L. 2.3:2800A,12  
 Thurin, Jacques 2.3:1530C,4  
 TI 2.1:A300,4;2.8:Pa300,5  
 Timoshenko, Stephen 2.3:3100,8  
 Tomer, Robert B. 2.3:1550A,6  
 Tong, Kin N. 2.3:3100,6  
 Torrey, H. C. 2.3:2300,15  
 Tou, Julius T. 2.3:1370A,11  
 Townes, Charles H. 2.3:1500,6  
 Townsend, G. E. 2.3:1800,S4;  
     2.3:1830A,16  
 Trendelenburg, Ferdinand 2.3:2600,11  
 TRI 2.9:Pl200A,10  
 Trillat, Jean J. 2.3:2100C,13  
 Trokolanski, Adam T. 2.3:3000D,2  
 Troup, G. J. F. 2.3:1730B,1  
 Troxell, G. E. 2.3:3600,9  
 Truitt, Robert W. 2.3:1800,1;  
     2.3:3000A,11  
 Truxal, John G. 2.3:1330A,9;  
     2.3:1500,17  
 TSentral' no Byuro Tekhnicheskoi  
     Informatsii 2.8:Pa100,20,  
     2.8:Pa200,5,10  
 Tsidil'kovskii, I. M. 2.3:1550D,3  
 Tsyppkin, Ya Z. 2.3:1330D,3  
 Turner, Louis A. 2.3:2300,26  
 Tustin, Arnold 2.3:1300A,13;  
     2.3:1330A,14  
 Tuve, George L. 2.3:2900A,12  
 Twyman, F. 2.3:1200B,4  
 Tybulewicz, A. 2.3:1550D,3  
 Tyson, Forrest C. Jr. 2.3:1200A,1  
  
 UCLA 2.3:3400A,7  
 Ufimtsev, P. Ya. 2.3:1730D,7  
 Uhlenbeck, G. E. 2.3:2300,24  
 UKAEA 2.2:B200,9  
 UL 2.9:Pl200A,5  
 UNESCO 2.3:1300C,1;2.3:1400B,4;  
     2.3:2400C,5;2.7:I100,1;2.9:Pl400,10  
 University of Leiden 2.9:P800,7  
 University of Tokyo 2.9:P250D,1  
 U. S. Army 2.2:B100,12;2.3:1700A,6  
 USDA 2.7:I200,3  
 USGS 2.1:A400,5

### 3. Author Index (Cont.)

Uslan, S. D. 2.3:1530A,15  
 USNI 2.3:1900,2;2.3:2600,20  
 USPO 2.8:Pa100,3;2.8:Pa200,2,S;  
 2.8:Pa300,9  
 USSR, Council of Ministers  
 2.8:Pa200,5,10  
  
 Vainshtein, B. K. 2.3:2170,10  
 Valdes, Leopoldo B. 2.3:1560A,15  
 Valle, Joseph M. D. 2.3:2900B,1  
 Valley, G. E. 2.3:2300,18  
 Valley, George E. Jr. 2.3:2300,22  
 Vallot, J. 2.3:1200C,3;2.3:3500,13  
 Vance, A. W. 2.3:2170,12  
 Vance, Robert W. 2.3:2800A,9  
 Vanderslice, T. A. 2.3:2500A,S  
 Van der Ziel, Aldert 2.3:1550B,2  
 Van Trees, Harry L. 2.3:1330A,13  
 Van Valkenburg, M. E. 2.3:1700A,12  
 VanVoorhis, S. N. 2.3:2300,23  
 Van Wazer, J. R. 2.3:3000A,S  
 Van Went, Johanna M. 2.3:3400B,2  
 Varga, Richard S. 2.3:1400A,6  
 Vavra, Michael H. 2.3:1800,3  
 VDE 2.3:1430C,2;2.9:P530,7,15  
 VDI 2.2:B200,3;2.2:B400C,4;2.3:3300,5;  
 2.9:P300C,7;2.9:Pl50C,6,7;2.9:Pl200C,  
 3,5,7,8;2.9:Pl400,12  
 VDMA 2.5:D100C,1  
 VDPG 2.1:A400,7;2.9:P600C,1;2.9:  
 Pl100C,9  
 Vermilyea, D. A. 2.3:2900A,20  
 Vernier, P. 2.3:1670,2  
 Vierling, Otto 2.3:2200,10  
 Vilbig, F. 2.3:1730C,8  
 VINITI 2.1:A100,8  
 Vinogradova, M. B. 2.3:1770D,S  
 VNIIM 2.9:Pl500,10  
 Voge, J. 2.3:1530C,8  
 Voigt, Theodor 2.3:2200,10  
 Volluz, R. J. 2.3:2600,13  
 Von Foerster, H. 2.3:1400A,10;  
 2.3:1570,2  
 Von Hippel, Arthur R. 2.3:1670,12  
 Voronov, Avenir A. 2.3:1430D,3  
 von Voss, Richard 2.3:2900C,11  
 Vuyksteke, Arthur A. 2.3:1730A,1  
  
 WADC 2.3:1730A,9  
 WADD 2.3:1830A,8  
 Wade, Warren F. 2.2:B200,4  
 Wahlstrom, Ernest E. 2.3:2100A,6  
 Waidelich, Donald L. 2.3:1670,3  
 Wainwright, L. 2.3:1400A,7  
 Wait, E. 2.3:2300,43  
 Wait, James R. 2.3:1700A,9  
 Wakeford, R. C. 2.3:1830A,S1  
 Wakerling, R. H. 2.3:2400A,2  
 Walcher, Theodor 2.3:1230C,12  
 Waldron, J. D. 2.3:2130,11  
 Waldron, Richard A. 2.3:1730A,21  
 Walford, Albert J. 2.6:G100,S  
 Walker, Gerald A. 2.3:1530B,2  
 Walker, Stanley 2.3:2130,9  
 Wallman, H. 2.3:2300,18  
 Walsh, Craig 2.3:1500,14  
 Walsh, John W. T. 2.3:2100B,3  
 Walsh, Thos. J. 2.3:3400A,20  
 Walston, Joseph A. 2.3:1560A,4  
 Ware, Willis H. 2.3:1430A,S  
 Warren, S. R. Jr. 2.3:3400A,12  
 Warschauer, D. M. 2.3:2500A,12  
 Wass, C. A. A. 2.3:1500,18  
 Wasserrab, Th. 2.3:1600C,8  
 Waterman, Peter J. 2.3:1730A,8  
 Waterman, Thos. E. 2.3:1000B,2  
 Watteeuw, H. 2.3:1270,16  
 Wawzonek, S. 2.3:3400D,3  
 WBAN 2.3:2500A,10  
 Weather Bureau 2.9:Pl000A,3  
 Weaver, Warren 2.3:1400A,2  
 Wegner, Karl 2.3:1560C,9  
 Weik, Martin H. 2.3:1430A,16  
 Weinberg, F. J. 2.3:2100B,7  
 Weiner, Jerome H. 2.3:2800A,7  
 Weingraber, H. 2.3:1270,4  
 Weinmann, A. 2.3:1800,8  
 Weise, Harold 2.3:2200,10  
 Weiser, Peter B. 2.3:1830A,17  
 Weissberger, Arnold 2.3:3200A,15  
 Weitzsch, Fritz 2.3:1560C,9  
 Wellard, Charles L. 2.3:1530A,9;  
 2.3:1670,18  
 Wellinger, K. 2.3:3600,8  
 Wells, F. H. 2.3:1500,18;2.3:2700,2  
 Wentorf, R. H. 2.3:2500B,2  
 Werkmeister, G. 2.3:1630C,3  
 Werkmeister, Paul 2.3:1270,8  
 West, John C. 2.3:1370A,1

### 3. Author Index (Cont.)

Western Electric 2.9:P700,9  
 Western Union 2.9:P700,7  
 Westinghouse 2.9:P570,6  
 Weyl, Charles 2.3:3400A,12  
 Wheeler, D. J. 2.3:1430A,2  
 White, David C. 2.3:1600A,5  
 White, J. F. 2.3:1800,S1  
 White, J. L. 2.3:2800B,4  
 Whitehead, T. N. 2.3:1230A,6  
 Whiteley, A. L. 2.3:1100,7  
 Whitfield, I. C. 2.3:3400A,10  
 Whitmer, C. A. 2.3:2300,15  
 Wiberly, Stephen E. 2.3:3200A,3  
 Widl, E. 2.3:1730C,11  
 Wiedenbeck, M. L. 2.3:1600A,10  
 Wiener, Norbert 2.3:1300A,1  
 Wiens, Wilhelm C. W. O. 2.3:1000C,9  
 Wijn, H. P. J. 2.3:1550C,8  
 Wilkes, M. V. 2.3:1430A,2  
 Willard, H. H. 2.3:2100A,11  
 Willardson, Robert K. 2.3:1550A,8  
 Williams, Dudley 2.3:1900,3  
 Williams, Frederick C. 2.3:2300,20  
 Williams, Samuel B. 2.3:1430A,19  
 Williams, T. J. 2.3:3200A,13  
 Wilson, A. J. C. 2.3:2100B,9;  
 2.3:2100C,10  
 Wilson, Frank W. 2.3:1000A,20  
 Winchell, Constance M. 2.6:G100,5  
 Winkel, Fritz 2.3:1630C,1  
 Wind, Moe 2.3:1500,16;2.3:1770A,11  
 Winkler, O. 2.3:3200C,9  
 Wiskocil, C. T. 2.3:3600,9  
 Wittke, Heinz 2.3:1900,8  
 Wolf, Emil 2.3:2100B,4;2.3:2100C,11  
 Wolf, Helmut 2.3:2100C,9  
 Wolf, K. A. 2.3:3600,3  
 Wolfendale, Eric 2.3:1550B,5  
 Wolff, H. 2.3:2200,10  
 Wolfhard, H. G. 2.3:2800B,6  
 Woodson, Herbert H. 2.3:1600A,5  
 Woodson, Wesly E. 2.3:1200A,18  
 Woodward, P. M. 2.3:1500,18;2.3:1730A,19  
 Woodward, R. H. 2.3:2300,4  
 Wooldridge, D. E. 2.3:1300A,12  
 Wormall, A. 2.3:2300,45  
 Wosnik, J. 2.3:1700C,6  
 Wright, William D. 2.3:2100A,8  
 Wright, W. V. 2.3:2800A,14  
 Wu, C. S. 2.3:1900,3  
 Wunsch, G. 2.3:1700C,3  
 Yarnell, J. 2.3:1230B,4  
 Yarwood, J. 2.3:2500A,8;2.3:2500B,3  
 Young, Alwyn 2.3:1370A,6  
 Young, James F. 2.3:3600,6  
 Younger, John E. 2.3:2900A,10  
 Yovits, M. C. 2.3:1300A,5;2.3:1430A,7  
 Yuan, L. C. L. 2.3:1900,3  
 Zacherl, M. K. 2.3:3200C,1  
 Zarantonello, E. H. 2.3:3000A,8  
 Zeiss 2.9:P170,2;2.9:P830C,16  
 Zelbstein, Uri 2.3:1230C,7  
 Zel'dovich, Ya. B. 2.3:2300,S6  
 Zeluff, Vin 2.3:1300A,6  
 Zenneck, J. 2.3:1700C,3  
 Zentner, R. D. 2.3:2300,31  
 Zevin, L. S. 2.3:2300,S3  
 Zimmerman, H. J. 2.3:1530A,S;2.3:1570,7  
 Zimmerman, Oswald T. 2.7:1100,6  
 Zinke, Otto 2.3:1770C,4  
 Zopf, G. W. Jr. 2.3:1400A,10;2.3:  
 1570,2  
 Zucrow, M. J. 2.3:1830A,13  
 Zuman, P. 2.3:3400D,3  
 Zwick, George 2.3:1530A,8  
 Zworykin, Vladimir J. 2.3:1670,13;  
 2.3:1770A,3;2.3:2170,12

#### 4. SUBJECT INDEX.

Subject entries are chiefly based only on titles; deeper penetration is provided for a few obscure titles. The subject classification has a different function and could not serve as a subject index; each supports the other. The index provides analytical capacity for disclosing topics concealed in the classification by overlap among classes, or by multiple interests in one entry.

Page numbers are not indicated; entries by class number and item number facilitate exact location of entries through their numerical sequence.

Cross references are of two conventional kinds:

See (for near identities), e.g. Lighting. See Illumination.

See also (broader to narrower terms, or vice versa), e.g. Navigation.  
See also Avigation.

Since cross references cannot predict all the synonyms which will be sought, a guessing game goes on forever between indexers and searchers. Sometimes perversely called an effort by each to outguess the other, it is actually an inguessing game. Indexers seek to read in inquirers' minds the terms they will seek; searchers seek to read in indexers' minds their most probable choice among entries. Skill in this game can and should be cultivated on both sides. Practice and patience are commended to users of this index.



#### 4. Subject Index (Cont.)

##### Aberrations

lenses 2.3:2100C,5

Absorptimetry 2.3:2130,5,6

##### Abstracting

services 2.6:G300,6,7

##### Acceleration

bibliographies 2.2:B100,20

Accelerators 2.9:P900A,8

instrumentation 2.9:P900C,5

Acoustics 2.9:P870,1,5,7,9,10;

2.9:Pl200C,6

conferences 2.3:2600,18

electric 2.3:2600,22

field theory 2.3:1900,6

infrasonic 2.3:2600,9

measurements 2.3:2600,14

principles 2.3:2600,1,7,11

underwater 2.3:2600,12

Acoustics. See also Electroacoustics,

Hypersonics, Sound, Ultrasonics.

Aerodynamics 2.3:1800,7,17

aircraft 2.3:1800,10

bibliographies 2.2:B400C,7

chronophotography 2.3:2200,7

flame studies 2.3:2100B,7

hypersonic 2.3:1800,1,15;

2.3:3000A,10,11

handbooks 2.3:2600,13

measurements 2.3:1800,9

missiles 2.3:1830A,15

Aerodynamics. See also Aircraft.

Aeronautics 2.9:P300A,3,7,9;2.9:P300B,1;

2.9:P300C,3,7,5;2.9:P300D,1

abstracts 2.1:A600,4,7,8,14

bibliographies 2.1:A600,17;2.2:B400C,5

design data 2.3:1800,16

dynamics 2.3:3000B,2

forecasting 2.3:2000,2

hypersonics 2.3:1800,12

indexes 2.1:A700,16

missiles 2.9:P300C,5

publications 2.9:P300A,13

Aeronautics. See also Navigation.

Aerospace 2.9:P300C,1,2,3;2.9:P300D,1;

2.9:P530,4

abstracts 2.1:A600,4,16

catalogs 2.5:D100A,8

electricity 2.3:1830A,19

electronics 2.3:1830A,19

engineering 2.9:P300A,2,8,9;2.9:P300B,

2;2.9:P300D,2

##### Aerospace (Cont.)

information services 2.6:G100,7

literature

source lists 2.7:I200,4

medicine 2.9:P300A,6

research 2.9:P300B,3

sciences 2.9:P300A,5,12;2.9:P300B,3

technology 2.9:P300A,8;2.9:P300B,2

telemetry 2.3:1830A,9

vehicles 2.3:1830A,12

Aerospace. See also Astronautics,

Space.

Aerothermodynamics 2.3:1800,3

##### Agriculture

bibliographies 2.7:I200,3

##### Air

pollution 2.3:3400A,2

sampling devices 2.3:1270,18

properties 2.3:2800C,3

thermodynamic properties 2.3:3000A,1

Air. See also Atmosphere.

Air conditioning 2.9:P800,4

automatic control 2.3:1370A,5

bibliographies 2.2:B400C,1

catalogs 2.5:D100A,4

handbooks 2.3:1000A,19

Aircraft 2.3:1830A,13

electrical systems

handbooks 2.3:1800,8

engineering 2.9:P300A,4

high speeds 2.3:1800,7

instrument flying 2.3:1800,13

Aircraft. See also Aerodynamics.

##### Alloys

handbooks 2.3:1000B,2

##### Amplidyne

control systems 2.3:1100,7

Amplifiers 2.3:1330C,9;2.3:1500,18;

2.3:1530C,2,8,13;2.3:1550B,4;

2.3:2400A,8

applications 2.3:1560A,51

control systems 2.3:1100,7

diode 2.3:1550A,2

magnetic 2.3:1730A,7

analysis 2.3:1630A,4

circuitry 2.3:1630A,11

nuclear counters 2.3:2400A,5

radio 2.3:1700C,11

transistor 2.3:1730B,3

##### Analysis

chemical 2.3:3200A,10

#### 4. Subject Index (Cont.)

##### Analysis (Cont.)

chemical

x-rays 2.3:2300,43

chromatographic 2.3:3200C,3

colorimetric 2.3:3200A,11

electrochemical 2.3:3200A,26

instrumental 2.3:2100A,11;

2.3:3200A,3,7,8,18,20

instrumental

metals 2.3:3300,7

micro 2.3:3200A,S2;2.3:3200C,1,6;

2.3:3300,11

x-ray 2.3:2170,17

photometric 2.3:3200A,11

physical methods 2.3:3200A,S4

qualitative 2.3:3200A,22

spectrochemical 2.3:3200A,11

x-ray 2.3:2130,4

volumetric 2.3:3200B,3

x-ray 2.3:3200C,S;2.9:Pl330,6

##### Anatomy

electron microscopy 2.3:2170,5

##### Animals

cybernetics 2.3:1300A,1

##### Antennas 2.3:1700C,11;2.3:1730C,15;

2.9:P530,4

handbooks 2.3:1000A,18

microwave 2.3:1730D,2;2.3:2300,12

radio 2.3:1770C,5

##### Apparatus

designs 2.9:Pl450C,6

electron-medical 2.3:3400A,6

##### Argon

thermodynamic properties 2.3:3000A,1

##### Armament

missiles 2.3:1800,17

##### Asphalts

testing 2.3:3600,5

##### Astronautics

abstracts 2.1:A600,12,14

advances 2.9:P300A,10

bibliographies 2.2:B400C,5

conferences 2.3:1800,5

design data 2.3:1800,16

dynamics 2.3:1800,17

handbooks 2.3:1830A,5,6

Soviet 2.3:1830D,2

Astronautics. See also Aerospace,  
Navigation, Space.

##### Astronomy

bibliographies 2.2:B100,S3;2.2:B300,6

information services 2.6:G100,7

radio

meteorology 2.3:2000,5

tables 2.3:1000C,10

Astrophysics 2.9:P830A,11;2.9:Pl100A,2;

2.9:Pl100C,5;2.9:Pl600,8

handbooks 2.3:1000C,4

##### Atmosphere

research conferences 2.3:2000,5

Atmosphere. See also Air

##### Atomic energy.

piles 2.3:2400C,3

power generation 2.9:P900C,8

Atomic energy. See also Nuclear energy

##### Atoms

physics 2.3:1900,3

Automatic control 2.3:1200A,9;2.3:

1200C,7;2.3:1300A,7;2.3:2300,S4;

2.9:Pl00A,2;2.9:Pl00B,3,9;2.9:

P200,3;2.9:P250A,6;2.9:P250B,1;

2.9:P250C,2,3,6,8;2.9:P250D,1,2,

4,5;2.9:P530,4;2.9:Pl300,5,9

abstracts 2.1:A600,1

air conditioning 2.3:1370A,5

bibliographies 2.2:B200,2,3,4,9,11

catalogs 2.5:D100A,2,14

ceramics 2.9:P250C,4

chemical processes 2.3:3200A,13

circuits

handbooks 2.3:1300A,6

components 2.3:1300D,10

computers 2.3:1300A,16

conferences 2.3:1300A,13;2.3:1300D,6

design 2.3:1300A,14

digital devices 2.3:1430C,2

discontinuous 2.3:1370A,13

dynamics 2.3:1300D,4

electronics 2.3:1300A,11;2.9:P600A,1

feedback 2.3:1300A,4

handbooks 2.3:1000C,1,5,8;2.3:1300A,  
2,8;2.3:1300C,3,6,7,13

industrial 2.3:1230C,5;2.3:1300C,9;  
2.3:1370A,4

measurements 2.9:Pl00C,1

optimizing 2.3:1300A,10

petroleum refining 2.3:3200A,13

relays 2.3:1330D,3

servomechanisms 2.3:1330A,4

#### 4. Subject Index (Cont.)

##### Automatic control (Cont.)

statistical techniques 2.3:1700C,1  
systems 2.3:1100,7;2.3:1300A,9,17;  
2.3:1300B,1;2.3:1300D,8,9;2.3:  
1330A,1,9,12,13;2.3:1330D,2;2.3:  
1370A,12;2.3:1370B,1;2.3:1370C,4;  
2.3:1400C,7  
telemetric 2.3:1330C,5  
theories 2.3:1300C,5;2.3:1300D,2,3;  
2.3:1370D,1

Automatic control. See also Automation,  
Controls, Process Control, Servo-  
mechanisms.

Automation 2.1:A100,8;2.3:1400A,10;  
2.9:P100A,2;2.9:P100B,3,9;2.9:P200,  
4,13;2.9:P250A,2,7;2.9:P250B,3;  
2.9:P250C,1,3,5,6,7,8,9;2.9:P250D,  
3,4,5,6,7,8;2.9:P600C,4  
abstracts 2.1:A200,3;2.9:P250A,5  
amplifiers 2.3:1330D,1  
bibliographies 2.2:B200,6,8,11  
catalogs 2.5:D100C,4  
components 2.3:1300D,1  
conferences 2.3:1300A,5;2.3:1300D,7,8;  
2.3:1370A,8;2.3:1570,2;2.5:D100A,18;  
2.5:D100C,4;2.9:P250A,4  
handbooks 2.3:1300A,12  
human factors 2.3:1300C,4,5  
instruments 2.9:P100B,3,9  
machine tools 2.3:1330C,7;2.3:1370C,3  
machines 2.3:1330C,3,6  
punched cards 2.3:1400C,5  
relays 2.3:1330C,8  
servomechanisms 2.3:1300C,8  
systems 2.3:1300D,11

Automation. See also Automatic Control,  
Servomechanisms.

Autoradiography 2.3:3400A,13

Aviation. See Aircraft, Navigation.

Aviation 2.3:1800,52

engineering 2.3:1800,2

Aviation. See also Navigation.

Balances 2.3:3200C,1

specifications 2.3:3700,2

Balancing

mechanics 2.3:3100,10

Band filters

circuitry 2.3:1730C,9

Barometers

bibliography 2.3:2500A,5

Barometry

handbooks 2.3:2500A,10

Beta rays 2.3:2300,36

counting 2.3:2300,51

Beta rays. See also Radioactivity.

Bimetal

bibliography 2.2:B100,11

Bioastronautics

electronics 2.3:1830A,4

Biochemistry

polarography 2.3:3400D,3

Bioelectronics 2.3:3400A,5,8,10,15;

2.3:3400B,1,4;2.3:3400D,5

bibliographies 2.2:B400A,12

conferences 2.3:3400A,17

handbooks 2.3:3400A,14

Biology 2.9:P1600,8

abstracts 2.1:A100,1,3,13

bibliographies 2.2:B400D,3

laboratory technique 2.3:1100,3

microcalorimetry 2.3:2800C,7

temperature control 2.3:2800A,6

Biophysics 2.3:1200A,6

instrumentation 2.3:3400A,11

molecular 2.3:3400A,16

temperature control 2.3:2800A,12

Bitumens

testing 2.3:3600,5

Blood flow 2.3:3400A,4

Brinell

tests 2.3:3600,10

Broadcasting 2.9:P530,4

Cables 2.9:P770,8

Calibration 2.3:3500,11;2.9:P1500,5;

2.9:P1550,13

electric meters 2.3:1230C,13

standards 2.3:3500,4

Calorimetry 2.3:2800A,18

gas 2.3:2800B,1

micro 2.3:2800C,7

Capacitance

bridge 2.3:1230B,7

Capacitors 2.3:1500,14;2.3:1530B,8

discharges 2.3:1670,11;2.3:1730C,4

Carbon dioxide

thermodynamic properties 2.3:3000A,1



#### 4. Subject Index (Cont.)

- Carbon monoxide  
thermodynamic properties 2.3:3000A,1
- Cardiography  
electric 2.3:3400A,20;2.3:3400C,2;  
2.3:3400D,7
- Cartography 2.9:P1000D,6
- Cathodes  
discharges 2.3:1530C,S
- Cathode rays 2.3:1530D,1;2.3:2300,22  
devices 2.3:1530A,15  
oscillography 2.3:1530C,9
- Cavities 2.3:3000A,8
- Ceramics  
abstracts 2.1:A700,8,13,15  
automation 2.9:P250C,4  
handbooks 2.3:1000B,2
- Cermets  
handbooks 2.3:1000B,2
- Chemical Analysis. See Analysis.
- Chemical industry  
controls 2.3:3200C,9  
physics 2.3:3200B,5
- Chemicals  
organic  
spectrometry 2.3:2130,16
- Chemistry 2.1:A100,11;2.9:P1150C,1;  
2.9:P1200D,1,5;2.9:P1600,3  
abstracts 2.1:A100,1;2.1:A500,2,4  
analytical 2.3:1000C,5;2.3:1200C,7;  
2.3:3200A,7;2.9:P1300,1,2,4,5,6,7,  
8,9,10,12;2.9:P1300,12,13;2.9:  
P1330,13  
abstracts 2.1:A500,3  
instrumentation 2.9:P1300,3  
micro 2.9:P1330,1,10  
nucleonics 2.9:P900A,9  
apparatus  
catalogs 2.5:D100C,5  
bibliographies 2.2:B400D,3  
cosmic 2.9:P1050,5  
electro. See Electrochemistry.  
handbooks 2.3:1000A,21,27  
heats of reaction 2.3:2800A,16  
indexes 2.6:G200,2;2.7:I200,1  
industrial 2.9:P1370,2,3,4,5,7,9  
instrumentation 2.1:A200,1;2.3:  
3200A,15  
literature guides 2.6:G200,5,6  
machinery 2.3:3200A,9  
micro 2.3:3200C,1  
nomenclature 2.6:G200,2
- Chemistry (Cont.)  
nuclear 2.3:1400A,3  
physical 2.3:3200A,19,26;2.7:I200,5;  
2.9:P1300,11;2.9:P1330,5,11;2.9:  
P1370,8;2.9:P1600,8  
reaction kinetics 2.3:2800B,4  
solids 2.9:P1100B,4  
tables 2.3:1000C,10
- Chemistry. See also Analysis, Electro-  
chemistry, Geochemistry, Magneto-  
chemistry, Photochemistry.
- Chromatography 2.3:3200A,6;2.3:3200C,5;  
2.9:P1330,9  
applications 2.3:3200C,3  
electro 2.3:3200A,25  
gas 2.3:3200A,1,2,21;2.3:3300,11  
abstracts 2.1:A200,2,7  
inorganic 2.3:3200C,1  
ion exchange 2.3:3200A,25  
techniques 2.3:3200B,2
- Chronometry 2.3:2300,20;2.9:P100C,8;  
2.9:P130,1,3,7  
clocks 2.3:2700,3,4  
electronic 2.3:2700,1  
handbooks 2.3:2700,4
- Chronometry. See also Time.
- Chronophotography  
aerodynamic studies 2.3:2200,7
- Circuits  
alternating current 2.3:1630A,5  
analysis 2.3:1700B,1;2.3:1770A,8  
electronic 2.3:1570,7  
functional 2.3:1630A,12  
printed  
foil techniques 2.3:1570,4  
switching 2.3:1630A,3  
transient  
analysis 2.3:1630A,9
- Clays  
x-ray analysis 2.3:2100B,2
- Climatology 2.3:1900,9
- Clocks. See Chronometry.
- Coils  
testing 2.3:1230C,10
- Color 2.3:2100A,13  
measurements 2.3:2100A,8
- Colorimetry 2.3:2130,5;2.3:3300,11  
instruments 2.3:3200A,11
- Combustion 2.3:1800,7;2.9:P800,2,3  
conferences 2.3:3200B,1  
flame studies 2.3:2100B,7



#### 4. Subject Index (Cont.)

##### Combustion (Cont.)

gases 2.3:2800B,5

##### Communication 2.3:1300A,1

handbooks 2.3:1000A,24

systems 2.3:1700A,7

theories 2.3:1400A,2;2.3:1400B,5;

2.3:1700A,2;2.3:1770A,1

Communication. See also Telecommuni-  
cations.

##### Components

electronic. See Electronics.

handbooks 2.3:2300,17

##### Compressors 2.3:2900C,5

aerodynamics 2.3:1800,7

##### Computers 2.3:1400C,S;2.9:P200,1,4,7,

10,12,13,16;2.9:P530,4

abstracts 2.1:A300,4,7,12,13

analog 2.3:1430A,1,4,6,8,10,12,18,20;

2.3:1430C,3,4,5,7,S;2.3:1430D,3;

2.3:1500,18

programming 2.3:1430C,6

applications 2.3:1400A,1,3,6,7,S3

bibliographies 2.1:A300,4;2.2:B200,

1,10;2.2:B400B,1

binary techniques 2.3:1400C,1

components 2.3:1300D,10;2.3:1400A,8

conferences 2.9:P200,11

control systems 2.3:1300A,16;

2.3:1330A,10

designs 2.3:1400A,4;2.9:P200,8

devices 2.3:1400D,2

digital 2.3:1430A,1,8,9,11,12,15,17,

19;2.3:1430B,2;2.3:1430C,1,3,7;

2.3:1430D,1;2.3:2400A,10;2.9:P200,2

circuits 2.3:1430A,13

components 2.3:1430A,14

designs 2.3:1430A,3,21

programming 2.3:1400C,3;2.3:1430A,

2,5,S;2.3:1430B,1

systems 2.3:1430A,16

EEG analysis 2.3:3400A,7

electronic 2.9:P200,16

ETL Mark II 2.3:1430D,2

handbooks 2.3:1000A,13;2.3:1000C,8;

2.3:1300A,12;2.3:1300C,13

high-speed 2.3:1400B,2

information systems 2.3:1400D,S

laboratories 2.9:P200,15

linkages 2.3:2300,28

memories 2.3:1430A,7

##### Computers (Cont.)

programming 2.3:1370C,5;2.3:1400A,S2;

2.3:1400C,4,10;2.3:1400D,1;

2.3:1430A,8

theories 2.3:1400C,2

Computers. See also Data processing.

##### Conductors

physics 2.3:1550C,7

theories 2.3:1550D,5

Conferences. Look under the main topic.

##### Connectors 2.3:1500,14

##### Consultants 2.9:P1300,4

##### Contacts

electrical 2.3:1600B,1

abstracts 2.1:A300,9

handbooks 2.3:1570,10

##### Control systems 2.3:1370C,2;2.9:P100A,2

adaptive 2.3:1370A,2

computers 2.3:1330A,10

conferences 2.3:1300A,10,13;2.3:

1300D,6;2.9:P250A,3

designs 2.3:1300A,15

digital 2.3:1370A,11

direct current 2.3:1330A,14

electric 2.3:1330A,12

instruments 2.9:P100B,3

medical 2.3:1200A,6

nonlinear 2.3:1370A,1

sampled-data 2.3:1330A,2;2.3:1370A,11

stability 2.3:1370C,1

##### Controls 2.3:1200C,7;2.3:1300A,1

electric power 2.3:1370C,6

electronics 2.3:1370A,9

engineering 2.9:P250A,1

feedback

bibliographies 2.2:B200,7

fluid power 2.3:3000A,12

handbooks 2.3:1200A,2,12,13;2.3:

1300A,12

hydraulics 2.3:1330C,2;2.3:3000C,1

instruments 2.3:1200A,7

periodicals 2.9:P100D,4

remote 2.3:1330C,S;2.3:1330D,2

stochastic 2.3:1330A,8

Controls. See also Automatic control,

Process control, Quality control.

##### Copper

in instruments 2.3:2800B,2

##### Corrosion

abstracts 2.1:A600,2

#### 4. Subject Index (Cont.)

- Cosmic rays  
  bibliographies 2.2:B400D,2
- Counters  
  Cerenkov 2.3:2400A,8  
  nuclear  
    amplifiers 2.3:2400A,5  
    scintillation 2.3:1500,18
- Counters. See also Radioactivity.
- Cryogenics 2.9:P800,5,7,9,10  
  engineering 2.3:2800A,9
- Cryoscopies 2.3:1670,S;2.3:2800C,8  
  applications 2.3:2800C,1  
  bibliographies 2.2:B400A,1,4  
  experimental 2.3:2800B,7  
  physics 2.3:2800A,15;2.9:P800,8  
  superconductivity 2.3:2800A,8,11
- Crystallography 2.9:P830D,2  
  handbooks 2.3:2100C,17  
  optical 2.3:2100A,6  
  structure studies 2.3:2100C,10
- Crystals  
  electronics 2.3:1500,24  
  ferroelectric 2.3:1730A,10  
  luminescence 2.3:2100C,4  
  optical uses 2.3:2100C,15  
  oscillators 2.3:1730C,9  
  piezoelectric 2.3:1730A,9;2.3:2600,3  
  radio 2.3:1730C,12  
  semiconductors 2.3:1560B,1  
  single 2.3:1530B,3  
    applications 2.3:1730C,17  
  x-ray analysis 2.3:2100B,9;  
    2.3:2100C,12
- Crystal structures  
  minerals 2.3:2100B,2
- Cybernetics 2.3:1300A,1;2.3:1300C,S;  
  2.9:P250C,2,10;2.9:P250D,5
- Data processing 2.3:1300C,1;2.3:1400A,  
  11;2.3:1400B,1;2.3:1400C,S;2.3:  
  1400D,S;2.9:P200,1,4;2.9:P250A,6;  
  2.9:P250C,2  
  abstracts 2.1:A300,2  
  binary devices 2.3:1400C,1  
  conferences 2.3:1300C,1;2.3:1400B,4  
  electronics 2.3:1300C,11  
  handbooks 2.3:1000C,8;2.3:1300A,12;  
    2.3:1300C,13;2.3:1400C,6  
  high-speed 2.3:1400A,12
- Data processing. See also Computers.
- Density  
  controls 2.3:1300C,9  
  measurements 2.3:3500,10
- Deterioration  
  abstracts 2.1:A600,10
- Detonation  
  rocket fuels 2.9:P300A,7
- Development  
  industrial 2.9:P100B,6
- Diagnosis  
  electrical 2.3:3400A,21
- Dielectrics 2.3:1670,12;2.9:P500,2,16  
  abstracts 2.1:A300,8  
  devices 2.3:1630A,2
- Dielectrics. See also Electricity.
- Diffraction  
  electrons 2.3:2100C,13;2.3:2170,3,16  
  bibliographies 2.2:B400A,8  
  gratings 2.3:3500,3  
  light 2.3:2100C,5  
  x-rays 2.3:2170,10  
    bibliographies 2.2:B400A,8
- Diodes 2.3:1560C,4;2.3:1560D,1;2.9:  
  P700,18;2.9:P770,11  
  theories 2.3:1560C,7
- Dispersions 2.3:1900A,S1
- Displacement  
  bibliographies 2.2:B100,20
- Dissertations  
  abstracts 2.4:D,1  
  guides 2.4:D,2,3,4,5,6,7
- Distance  
  measurements 2.3:2200,13
- Distribution  
  countercurrent 2.3:3300,11
- Dosimetry 2.3:2300,30,33,37,38,42,46  
  47,S4,S5;2.3:2400A,8;2.9:P830A,4  
  neutrons 2.3:2400B,S  
  photographic 2.3:2300,37  
  radiation hazards 2.3:2300,30,33,  
    46,47
- Dosimetry. See also Radiation.
- Duplexers 2.3:2300,14
- Dynamics  
  analogies 2.3:2900A,2  
  fluid 2.3:2900A,13  
  gases 2.3:1800,7;2.3:2900A,11  
  lattice 2.9:P1150A,3  
  magnetogas 2.3:2900A,18  
  of points 2.3:2900C,1  
  plasma 2.3:2900A,18

#### 4. Subject Index (Cont.)

##### Dynamics (Cont.)

quantum 2.3:2900C,2  
theories 2.3:2900A,10

Dynamics. See also Mechanics.

##### Earth Sciences

information services 2.6:G100,7

##### Elasticity 2.3:2900A,17

theories 2.3:2900D,1  
thin shells 2.3:2900D,3

##### Electric energy

conversion 2.3:1600A,4,5;2.9:P500,10;  
2.9:P530,7

##### Electric meters

calibrating 2.3:1230C,13  
handbooks 2.3:1630A,10

##### Electric networks

analysis 2.3:1670,4

##### Electric power 2.9:P500,6;2.9:P530,8

devices 2.3:1600C,3

##### Electric apparatus

testing 2.3:1500,19

##### Electrical circuits

transients 2.3:1670,3

##### Electrical machines

magnetic fields 2.3:1670,7

##### Electrical measurements 2.3:1530C,4;

2.3:1600A,10,11;2.3:1600C,9;  
2.3:1600D;2.3:1670,8

a.c. 2.3:1670,1

a.c. and d.c. 2.3:2300,40

accuracy 2.3:1630C,3

analysis 2.3:1670,16

applications 2.3:1530A,10;2.3:1600A,9

devices 2.3:1630C,4,8;2.3:1670,6

low frequency 2.3:1770C,3

mechanical properties 2.3:1230C,14;  
2.3:1270,3

precision 2.9:P500,18

rectifiers 2.3:1230C,12

##### Electrical noise 2.3:1700A,4;2.3:1770A,6

##### Electrical systems

vibrations 2.3:3100,4

##### Electric equipment

medical 2.3:3400D,8

##### Electricity 2.9:P450C,1,5;2.9:P500,5,15;

2.9:P530,1

abstracts 2.1:600,3;2.2:A300,3

applications 2.3:1500,8;2.9:P600C,11

atmospheric 2.9:P1000A,5

##### Electricity (Cont.)

atomic power 2.9:P900C,8

circuitries 2.3:1600A,2;2.3:1600C,4;  
2.3:1630A,3,5,9

contacts 2.3:1600B,1

discharges 2.3:2400A,2

equipment design 2.9:P500,1,3

experimental 2.9:P500,7,9;2.9:P570,1

handbooks 2.3:1000A,12;2.3:1000C,4

industrial 2.9:P500,4,8,11,12,14;

2.9:P530,1,3,5,6,9,10,12,13,15;

2.9:P570,2,3,4,5,6,7,8,9,10;2.9:

P600C,11;2.9:P700,4,9

instruments 2.3:1230C,2

machines 2.3:1600C,1

relays 2.3:1630A,7

static

conferences 2.3:1600C,7

thermal 2.3:2800A,1

units 2.3:1600A,8;2.3:1600C,10

Electricity. See also Dielectrics,

Electrochemistry, Thermoelectricity

##### Electroacoustics 2.3:2600,22;2.9:P770,2

transducers 2.3:1730D,6

Electroacoustics. See also Acoustics.

##### Electrochemistry 2.9:P1370,1,6,10,11,12

analytical 2.1:A500,3;2.3:3200A,16;

2.9:P1330,2

instrumental 2.3:3200A,24,26

Electrochemistry. See also Electro-

phoresis.

##### Electrodes

glass 2.3:1230C,8

micro 2.3:3400D,6

references 2.3:1630B,3

##### Electrodynamics 2.3:1500,24

quantum 2.3:2900C,2

##### Electroencephalography 2.9:P130,5

computer techniques 2.3:3400A,7

##### Electroluminescence 2.9:P600A,7

##### Electromagnetic radiation 2.3:1700A,3,

6,9;2.9:P700,1

cavities 2.3:1730A,13

guided 2.3:1730A,6

interference

handbooks 2.3:1770A,5

measurements 2.3:2100C,6

propagation 2.3:1700C,9;2.3:1700D

Electromagnetic radiation. See also

Radio.

Electromagnetism 2.3:1600C,4;2.9:P1150A



#### 4. Subject Index (Cont.)

##### Electromagnetism (Cont.)

fields 2.3:1670,15  
field theories 2.3:1900,6  
relays 2.3:1630C,5

##### Electromechanical

systems 2.3:2900A,19

##### Electromyography 2.3:3400A,9

##### Electron beams

conferences 2.3:1500,21

design 2.3:1530A,21

technology 2.3:2400A,7

##### Electron emission 2.3:1500,18

##### Electron microscopy 2.3:2100C,13;

2.3:2130,3;2.3:2170,1,2,3,4,5,6,12,  
13,14,15,16,19,20;2.9:P830A,14;  
2.9:P830D,3

bibliographies 2.2:B100,8,21;

2.2:B300,1

handbooks 2.3:2170,18

metallographic 2.3:3300,4,S

##### Electron microscopy. See also

Microscopy.

##### Electron probe

microanalysis 2.3:3200A,S2

##### Electronics 2.1:A100,8;2.3:1500,18;

2.9:P250B,1;2.9:P530,14;2.9:P600A,  
7,12;2.9:P600C,2,3;2.9:P600D,3,4;  
2.9:P700,6,8,17;2.9:P730,4

abstracts 2.1:A300,6,14;2.9:P600A,3

applications 2.3:1500,8,20;2.3:2400A,  
2;2.9:P250C,5;2.9:P250D,5;2.9:P600C,  
6,7,8,9,10,11;2.9:P530,2,11;2.9:  
P700,13;2.9:P730,4

automation 2.9:P600C,4

avigation 2.3:1800,2

bibliographies 2.2:B300,4,5;2.2:

B400A,3;2.2:B400B,2

biological 2.3:3400B,1;2.9:P530,4

chronophotography 2.3:2200,7

circuitry 2.3:1530A,4,S;2.3:1530C,13;

2.3:1530D,2;2.3:1570,7

catalogs 2.5:D100A,9,13,16;2.5:D100B,  
5;2.9:P600A,11

conferences 2.3:1730C,3

control devices 2.3:1300,6,11;2.9:

P600A,1;2.9:P600C,4

correlation 2.3:1570,5

data processing 2.3:1300C,11

design 2.9:P500,1;2.9:P600A,9;

2.9:P600D,3

##### Electronics (Cont.)

devices 2.3:1500,15,24;2.3:1530A,6,11,  
13,16;2.3:1530B,9;2.3:1530C,10,12;  
2.3:1570,3;2.9:P570,10;2.9:P600C,5;  
2.9:P600D,5

noise 2.3:1530A,7

directories 2.5:D100A,10

encyclopedias 2.3:1000A,22;2.3:1500,  
25

engineering 2.9:P530,2

handbooks 2.3:1000A,15,24;2.3:1000C,6,  
2.3:1500,5,10,11,14;2.9:P600A,1,11

industrial 2.3:1500,2,7,9,10,12,13,  
22;2.3:1530A,17;2.9:P530,4,11;2.9:  
P600A,5;2.9:P600B,1,2;2.9:P600D,1,1

information services 2.6:G100,7

instrumental 2.3:1500,12,16,17;2.3:  
1530A,14,22;2.3:1770C,3;2.9:  
P100B,3,9

##### literature

source lists 2.7:I200,4

medical 2.3:3400A,5,8,10,15,17;

2.3:3400B,4;2.3:3400D,5;2.9:  
P130,10;2.9:P530,4

bibliographies 2.2:B100,2

handbooks 2.3:3400A,14

military 2.9:P530,4

miniaturization 2.3:1550A,9;2.3:  
1550B,8;2.3:1570,S;2.9:P700,16,  
17,18

##### nuclear

symposiums 2.3:2400C,1

packaging 2.3:1530B,2

physics 2.3:1700B,2;2.3:1900,3

principles 2.3:1500,3,23

production 2.3:1530B,4;2.9:P600B,2

quantum theories 2.3:1500,6;2.3:  
1550D,5

radio 2.9:P250,5

radiodosimetry 2.3:1530D,54

reliability 2.3:1500,4,20;2.3:1530A,  
5;2.9:P600A,2,13

reviews 2.9:P600A,7

solid state 2.3:1550C,1;2.9:P600A,8

space vehicles 2.3:1800,17

spectroscopic 2.3:1570,6

transistors 2.3:1550A,7;2.3:1560A,  
8,18

Electronics. See also Bioelectronics,  
Electron microscopy.



#### 4. Subject Index (Cont.)

##### Electrons

- emission 2.2:B100,19
- impacts 2.3:1570,1

##### Electrophoresis 2.3:3200A,S1

- applications 2.3:3200B,4
- bibliographies 2.2:B400A,11
- principles 2.3:3200C,4
- techniques 2.3:3200B,2

Electrophoresis. See also Electro-chemistry.

##### Electrostatics

- conferences 2.3:1600C,7

##### Elements

- handbooks 2.3:1000B,2

##### Emission

- photoelectric 2.3:1670,2

##### Encephalography

- electrical 2.3:3400D,2

Energy. See Solar energy.

##### Engineering 2.1:A100,11;2.9:P1200C,2,

- 3,4;2.9:P1200D,1,2,5;2.9:P1600,3

- abstracts 2.1:A600,4,6,9,11,13;
- 2.8:Pa300,5

##### astronautical

- handbooks 2.3:1830A,5

- automotive 2.9:P1200A,1

- bibliographies 2.2:B400B,1;2.2:B400C,

- 3,4,6;2.2:B400D,3;2.7:I100,7

- catalogs 2.5:D100A,3,12;2.5:D100B,4

- chemical 2.8:Pa300,5;2.9:P1200C,6;

- 2.9:P1370,3,4,7

- abstracts 2.1:A700,11

- handbooks 2.3:1000A,1

- civil 2.9:P1200B,2;2.9:P1200C,10

- cryogenic 2.9:P800,5

- electrical 2.1:A100,3;2.3:1600C,3,5;

- 2.9:P530,1,2;2.9:P570,5,6,7;2.9:

- P700,9;2.9:P730,17;2.9:P1200B,2

- abstracts 2.1:A100,9

- electronic 2.3:1500,13

- handbooks 2.3:1000A,4,7,9,11,20,24,

- 26,28,29;2.3:1000C,2;2.3:1700C,8

- hazards 2.9:P1200A,5

- human 2.3:1200A,18

- illuminating 2.9:P830A,3

- indexes 2.7:I100,11

- industrial 2.9:P1200B,3

- instruments 2.3:1200A,16

- literature guides 2.6:G100,7;2.6:

- G200,1,3,4,7

- mathematics 2.3:2900A,9;2.6:G200,3

##### Engineering (Cont.)

- measurements 2.3:1230A,5

- mechanical 2.1:A100,3;2.3:1200A,4;

- 2.3:2900A,12;2.9:P1200B,1,2;2.9:

- P1200D,4

- mining 2.9:P1200A,4

- nuclear 2.3:1000A,22;2.9:P900A,10;

- 2.9:P900B,1

- photographic 2.9:P830A,2,12

- physics 2.3:1900,4

- power 2.9:P1200A,8

- production 2.9:P1200A,3;2.9:P1200C,
- 1,5

- refrigerating 2.9:P1200A,11

- research 2.9:P1200C,8

- Soviet literature 2.9:P1200C,12

- systems

- design 2.3:1300A,3

- technology 2.9:P1200B,3

- testing materials 2.9:P1400,7,8

##### Engines

- jet 2.3:1800,7

- propulsion 2.3:1830A,13

##### Equipment

- design 2.3:1200A,18

Esophagoscopy 2.9:P130,9

##### Experiments

- design 2.3:1100,1,5,6,10

##### Explosion

- gases 2.3:2800B,5

##### Fatigue

- bibliographies 2.2:B100,S2

Feedback 2.3:1300A,4,14;2.3:1330A,1,9

Ferrites 2.3:1550C,8

- crystals 2.3:1730A,10

- high frequencies 2.3:1730C,5

- microwaves 2.3:1730A,4,18,21;

- 2.3:1770D,1,4

- theories 2.3:1730A,2

Ferrites. See also Semiconductors.

Ferromagnetism 2.3:1600A,7;2.3:1600C,2

- measurements 2.3:1600C,6

##### Field emission

- Soviet research 2.2:B100,19

##### Field theories

- handbooks 2.3:1900,6

##### Films

- optical properties 2.3:2100A,5

- thin 2.3:1900,10;2.9:P1100B,5

- physics 2.3:2500C,6;2.3:2900A,20

#### 4. Subject Index (Cont.)

##### Filters

electronic 2.3:1330C,9;2.3:1730C,9

##### Flames 2.3:2800B,5;2.9:P800,2

optics 2.3:2100B,7

temperature 2.3:2800B,6

##### Flight

orbital 2.3:P1800,S4

powered 2.3:1800,S1

##### Flight tests

instrumentation 2.3:1800,4

##### Flow. See also Fluid flow.

##### Flow 2.3:2900A,17

hypersonic 2.3:1800,14;2.3:3000B,1;  
2.9:P300A,7

in ducts 2.3:3000A,15

instruments 2.3:1200A,9

laminar 2.3:3000D,3

measurements 2.3:3000A,7,S;  
2.3:3500,10

solids 2.3:2900A,21

##### Flowmeters

computation

handbooks 2.3:3000A,2

engineering 2.3:3000A,13

orifice 2.3:3000A,7

##### Fluid flow. See also Flow.

##### Fluid flow 2.3:1800,7;2.3:2900A,13;

2.3:2900C,8,17;2.3:3000A,5,6,8,

9,14,17,18;2.3:3000B,2;2.3:

3000C,4

blood 2.3:3400A,4

hypersonic 2.3:3000A,16;2.3:3000D,1

thermodynamics 2.3:1830A,13

##### Fluids

mechanics 2.3:2900A,16

##### Fluorescence 2.3:2100A,14

##### Foil techniques

printed circuits 2.3:1570,4

##### Food additives

analysis 2.3:3200A,20

##### Fracture

solids 2.3:2900A,17,21

##### Frequencies

high 2.3:1600A,6;2.3:1700C,2,3,8;2.3:

1730C,5;2.3:1730D,4;2.3:1770A,4;

2.3:1770C,4;2.3:1770D,1

low 2.3:1770C,8

measurement 2.3:1770C,3;2.9:P770,4

microwave 2.3:1770D,4

radio 2.3:1530C,11;2.3:1770A,5;

2.9:P770,10

##### Frequencies (Cont.)

responses 2.3:1770A,7

##### Frequency modulation 2.3:1500,18

##### Fuels

abstracts 2.1:A700,5,10

gaseous 2.3:2800B,1

rocket 2.9:P800,6

##### Fuses 2.3:1500,14

##### Gages 2.9:P1400,14

##### Galvanometers

mirrors 2.3:1630C,7

##### Gamma rays 2.3:2300,36,S2;2.3:2400C,4

spectrometry 2.3:2300,34

##### Gases

abstracts 2.1:A700,5

combustion 2.3:2800B,5

dynamics 2.3:3000C,2

flow 2.3:3000A,5,9

ionization

conferences 2.3:2400C,2

rarified 2.3:3000A,3;2.9:P450A,3

##### Gastroscopy 2.9:P130,9

##### Gearing

industrial 2.3:2900B,2

##### Gears

handbooks 2.3:1000A,8

##### Geochemistry 2.9:P1050,5

##### Geodesy

instruments 2.3:1270,8

##### Geodetics 2.3:1900,8;2.9:P1000D,3,6

##### Geology 2.9:P1050,3,18

##### Geophysics 2.9:P1000A,1,2,3,4,5;2.9:

P1000B,1;2.9:P1000C,1,2,3,4,5,6,7,8;

2.9:P1000D,1,2,3,4,5,7,9,10;2.9:

P1050,16;2.9:P1600,5

abstracts 2.1:A100,1;2.1:A400,5,6

applications 2.3:1900,11;2.3:2000,3,4;

2.9:P1000C,9;2.9:P1050,14

bibliographies 2.2:B400A,9

handbooks 2.3:1000A,14;2.3:1000C,4;

2.3:1900,5

tables 2.3:1000C,10

##### Germanium

rectifiers 2.3:1630C,6

##### Glass

optical 2.3:1200C,1

##### Glassblowing 2.3:1100,9

##### Government publications

guides 2.6:G100,13

#### 4. Subject Index (Cont.)

##### Government publications (Cont.)

lists 2.7:I300,9

technical reports 2.7:I300,5

##### Gravitation

fields 2.3:1900,6

##### Guidance

inertial 2.3:1270,2;2.3:1800,11,S2;

2.3:1830A,8a,10,21;2.3:1830C

missiles 2.9:P300A,7

physics 2.3:1830A,4

##### Gyroscopes 2.9:P170,9;2.9:P1150A,5

applications 2.3:1230A,4;2.3:2900A,6;

2.3:2900B,3,4;2.3:2900C,14

##### Hardness

testing 2.3:1270,4;2.3:3300,5,10;

2.3:3600,10

##### Health

radiation hazards 2.3:2300,30

##### Health physics

instruments 2.3:3400A,1

##### Heat 2.3:2800A,2,7,16;2.9:P1200C,6

solar 2.3:2800C,5

technology

bibliographies 2.2:B400C,1

transfer 2.3:1800,7;2.3:2800A,13;2.3:

2800C,6;2.9:P800,1;2.9:P1200A,8

Heat. See also Calorimetry.

##### Heating

automatic control 2.3:1370A,5

catalogs 2.5:D100A,4

electric 2.9:P530,7

handbooks 2.3:1000A,19;2.3:1000C,S2

industrial 2.9:P800,2,4

##### Highway research

abstracts 2.1:A700,2

##### Horology. See Chronometry

##### Humidity

controls 2.3:1300C,9

measurements 2.3:3500,10

##### Hydraulics 2.3:2900C,9;2.3:3000A,6;

2.3:3000B,2

abstracts 2.1:A600,1

controls 2.3:3000A,12;2.3:3000C,1

measurements 2.3:3000B,3;2.3:3000D,2

##### Hydrodynamics 2.3:2300,S6

bibliographies 2.2:B400C,7

instability 2.3:2900A,5

##### Hydrogen

thermodynamic properties 2.3:3000A,1

##### Hydrographics

handbooks 2.3:2000,1

##### Hydrometry 2.3:3000D,2

##### Hygiene

industrial 2.3:1270,18

##### Hypersonics 2.3:1800,12;2.3:3000A,11,

16;2.3:3000D,1

conferences 2.3:3000A,10;2.3:3000B,1

Hypersonics. See also Ultrasonics.

##### Illumination 2.9:P830A,3;2.9:P830B,4;

2.9:P830C,1,11

electrical 2.9:P500,5;2.9:P530,7;

2.9:P600C,5

handbooks 2.3:2100A,12

##### Images

optical 2.3:2100C,5

##### Impact

electronic 2.3:1570,1

ionic 2.3:1570,1

##### Impulse techniques 2.3:1670,11

##### Indexing

services 2.6:G300,6,7

##### Inductance

bridges 2.3:1230B,7

##### Information retrieval

mechanized 2.3:1400A,S1

##### Information services 2.6:G100,4,12

science 2.6:G100,7

##### Information theory 2.3:1300C,13;2.3:

1400A,2,13;2.3:1400B,5;2.3:1400C,

7,8;2.3:1500,18;2.3:1700C,1;

2.3:1730A,19;2.9:P200,3

applications 2.3:1300C,10

symposium 2.3:1400A,9

##### Infrared

bibliographies 2.2:B100,4

instruments 2.3:2100C,6;2.3:2130,8,

9,12,18;2.3:3400A,2

methods 2.3:1770A,2;2.3:2100A,9,10

physics 2.3:2800A,4;2.9:P830A,13

Infrared. See also Light.

##### Infrasonics

spectrum 2.3:2600,9

##### Instrumentation 2.1:A100,4,8;2.3:1200A,

S;2.3:1230A,16;2.3:1500,18;2.9:

P100A,2,6;2.9:P1150B,2;2.9:P1600,3

abstracts 2.1:A200,4,9;2.1:A400,4,9;

2.1:A600,13;2.1:A700,7,11

air sampling 2.3:1270,18



#### 4. Subject Index (Cont.)

analytical 2.3:1200A,9;2.3:2100A,11;  
2.3:3200A,7,11,18,26;2.3:3200B,5;  
2.3:3200C,1;2.9:P1330,13,14  
bibliographies 2.2:B400B,1  
biophysics 2.3:3400A,11  
catalogs 2.5:D100C,2  
chemical 2.1:A200,1;2.3:3200A,12  
circuits 2.3:1530A,4  
combustion 2.3:3200B,1  
conferences 2.3:1200A,11;2.3:1200C,  
4,7;2.5:D100A,18  
control systems 2.3:1270,1  
copper 2.3:2800B,2  
electronic 2.3:1500,17;2.3:1530A,14;  
2.9:P530,4  
encyclopedias 2.3:1200B,5  
engineering 2.3:1270,19  
flight tests 2.3:1800,4  
geodetic 2.3:1270,8  
handbooks 2.3:1200A,2,12,16;2.3:  
1200B,3;2.3:1300A,8  
industrial 2.3:1200A,1,15,17;2.9:  
P170,5,7,8,10;2.9:P250B,3  
magnetic tapes 2.3:1230A,2;2.3:1630A,6  
marine sciences 2.3:1270,17,20  
medical 2.3:1200A,6;2.3:3400A,1,2,3;  
2.3:3400D,1  
nuclear 2.3:1000C,4;2.3:1200C,7;  
2.3:2400A,6,8;2.3:2400B,2,3;  
2.9:P900C,5  
periodicals 2.9:P100D,4  
photographic 2.3:2200,6;2.9:P100A,3  
polarography 2.3:3200A,23  
power plants 2.3:1270,6;2.9:P130,4  
process controls 2.3:1230A,9;  
2.3:1370A,3  
psychology 2.3:3400A,19  
pulp and paper 2.3:1270,5  
standards 2.3:1200A,5;2.3:3700,S  
Instruments  
applications 2.9:P100B,3,9;2.9:  
P100C,2,3,6;2.9:P100D,1  
calibration 2.3:3500,4  
handbooks 2.3:3500,9  
catalogs 2.5:D100A,2,6,7;2.5:D100B,2,  
3;2.5:D100C,6  
circuitry 2.3:1530A,22  
components 2.3:1230A,15;2.3:2900C,11,  
13  
controls 2.3:1200A,7  
design 2.3:1200B,2;2.3:1230A,6;2.3:  
1230B,5;2.9:P100A,4;2.9:P100D,3

#### Instruments (Cont.)

electrical 2.3:1230A,1;2.3:1230B,1,2;  
2.3:1230C,2;2.3:1500,14;2.3:1600C,  
10  
electrochemical 2.3:3200A,24  
electronic 2.3:1230A,12,13;2.3:1230B,  
6;2.3:2300,21;2.3:3700,5;2.9:P170,  
11  
gyroscopic 2.3:1230A,4;2.9:P170,9  
laboratory 2.3:1200A,14;2.3:1230A,14;  
2.9:P100C,7;2.9:P170,3,6  
measurements 2.3:1200A,7;2.3:1230D,1;  
2.3:1400C,9;2.3:1530C,11  
mechanisms 2.3:2900A,3  
meteorological 2.3:2000,6  
metrology 2.3:1200C,3;2.3:1230C,15;  
2.3:1270,12  
military systems 2.9:P130,8  
optical 2.1:A100,8;2.3:2100B,5;2.3:  
2100C,5,15;2.3:2400A,2;2.9:P170,2;  
2.9:P830C,14,16  
photoindicating 2.3:1630C,7  
precision 2.9:P100C,5,9,10;2.9:P100B,  
4a;2.9:P170,4;2.9:P450C,6,7;2.9:  
P450D,10  
radiation  
catalogs 2.5:D100A,15  
radio 2.9:P170,1  
recording 2.3:1230C,9,16  
reliability 2.1:A100,11,2.3:1200A,10  
scientific 2.9:P100A,5;2.9:P100B,1  
servicing  
handbooks 2.3:1200A,8  
specifications 2.3:3700,2  
surveying 2.3:1270,9  
technology 2.9:P100B,4,5,7;2.9:P170,  
7;2.9:P100D,2;2.9:P250C,9  
torsion devices 2.3:1230B,3  
wind tunnel 2.3:2600,13  
Interference  
frequency 2.9:P530,4  
Interferometers 2.3:2100B,8  
Intermetallics  
handbooks 2.3:1000B,2  
Ionization  
conferences 2.3:2400C,2  
counters 2.3:2400A,2  
detectors 2.3:2400A,8  
gaseous  
conferences 2.3:2400C,2



#### 4. Subject Index (Cont.)

##### Ionometry

geoprospecting 2.3:2000,4

##### Ionosphere 2.9:P730,11

bibliographies 2.2:B300,10;  
2.2:B400A,7

##### Ions

emission 2.2:B100,19

impacts 2.3:1570,1

##### Irradiation

nuclear 2.3:2400D

##### Isotopes 2.3:2130,13;2.3:2300,45;

2.9:P900C,15

##### Jet propulsion 2.3:1800,7;2.9:P300A,14

bibliographies 2.2:B400A,2

##### Jets 2.3:3000A,8

##### Jet streams 2.3:2100A,1

##### Klystrons 2.3:1530B,1;2.3:1530C,8;

2.3:2300,7

##### Laboratories

industrial 2.9:P100A,7

techniques 2.3:1100,9;2.9:P100A,1;  
2.9:P100B,2;2.9:P100C,7

##### Laplace transforms 2.3:1500,18

##### Lasers 2.3:1730A,15;2.3:2100A,4,S2

##### Layers

boundary 2.3:1800,14

##### Length

measurements 2.3:3500,1

##### Lens 2.3:1200B,4

##### Level

instruments 2.3:1200A,9

##### Light

bibliographies 2.2:B100,4

calculations 2.3:2100C,1

generation 2.3:2100A,4

images 2.3:2100C,5

infrared 2.3:1770A,2;2.3:2100A,3,9,  
10;2.3:2800A,4

instruments 2.3:3400A,2

measurements 2.3:2100B,3

Light. See also Infrared, Photo-,  
Ultraviolet.

Lighting. See Illumination.

##### Limnology 2.9:P1050,13

##### Liquid level

measurements 2.3:3500,10

##### Logic

engineering 2.3:1430A,8;2.3:1500,18

##### Loran 2.3:2300,4

##### Luminescence

crystals 2.3:2100C,4

Luminescence. See also Electro-  
luminescence, Fluorescence.

##### Machine tools 2.9:P450D,3

conferences 2.9:P250A,3

control 2.3:1370C,3

handbooks 2.3:1000A,20

standards 2.3:3300,8

##### Machine translation 2.2:B200,5;2.3:

1400A,5;2.3:1400B,3;2.3:1400C,S

##### Machinery

chemical 2.3:3200A,9

##### Machines 2.9:P1200A,7

abstracts 2.1:A600,3

automation 2.3:1300C,4

catalogs 2.5:D100C,1,7

cybernetics 2.3:1300A,1

design 2.2:B200,8;2.3:1270,16;2.3:  
2900C,16;2.9:P450C,6

dynamic analysis 2.3:2900A,8

electrical 2.3:1600C,1,9;2.3:1670,7

handbooks 2.3:1000A,2;2.3:1000C,7

testing 2.3:2900C,19

##### Magnavolt

control systems 2.3:1100,7

##### Magnetic fields 2.3:1500,24;2.3:2400A,2

##### Magnetic materials

applications 2.3:1600A,6

##### Magnetic resonance 2.3:1600A,1;

2.3:3200C,10

##### Magnetic tape 2.3:1630A,6;2.3:1630B,1

##### Magnetism 2.3:1500,S;2.3:1600A,8,S;

2.3:1630A,2;2.3:1630C,1;2.3:  
1900,3

bibliographies 2.2:B400A,5

handbooks 2.3:1000C,4

terrestrial 2.9:P1000A,5

Magnetism. See also Electromagnetism,  
Ferromagnetism.

##### Magnetochemistry 2.3:3200A,17

##### Magnetohydrodynamics 2.2:B400A,10;

2.3:2900A,11;2.3:2900C,17

##### Magnetrons 2.3:1530C,8;2.3:2300,6

#### 4. Subject Index (Cont.)

- Magnicon  
control systems 2.3:1100,7
- Man  
and machines 2.3:1300C,4
- Manipulation  
physicochemical 2.3:3200A,19
- Manometers  
bibliographies 2.3:2500A,5
- Manufacturers  
catalogs 2.5:D100A,1,11;2.5:D100B,1;  
2.5:D100C,2
- Mapping  
electronic 2.3:1570,8
- Maps 2.9:P1000D,6
- Marine gearing 2.3:2900B,2
- Masers 2.3:1730A,1,15,17;2.3:1730B,1;  
2.3:2100A,S2  
bibliographies 2.2:B100,S1
- Mass transfer 2.9:P800,1
- Materials  
deterioration 2.1:A600,10  
handbooks 2.3:3600,6  
magnetic properties 2.3:1500,S;  
2.3:1600A,S  
mechanics 2.3:2900A,14  
properties  
tables 2.3:1000C,3  
standards 2.9:P1400,4  
structural 2.2:B400A,1  
testing 2.3:1270,4;2.3:1300C,2;2.3:  
2900A,7;2.3:3600,2a,8,9,12,13,16  
trade names 2.7:I100,6
- Materials. See also Testing materials.
- Mathematics 2.9:P400,6,11;2.9:P1200D,1,  
5;2.9:P1600,3,7  
abstracts 2.1:A100,1,7,10  
analytical 2.9:P400,8  
applied 2.3:2900A,5,13;2.9:P400,1,2,4,  
5,7,9;2.9:P450B,1;2.9:P1150C,6;  
2.9:P1200C,6  
bibliographies 2.2:B400A,9;2.2:B400D,4  
computation 2.9:P400,10  
handbooks 2.3:1000C,4  
in industry 2.9:P200,13  
in instrumentation 2.3:1200A,16  
information services 2.6:G100,7  
literature guides 2.6:G200,4
- Matter  
structure 2.3:2100C,10;2.9:P830A,14  
structure studies 2.3:2100C,13
- Measurements 2.3:1200A,4,16;2.3:3500,  
5,12;2.9:P250,2;2.9:P1400,3  
acoustic 2.3:2600,14  
aerodynamic 2.3:1800,9  
conferences 2.3:1200C,4,7  
distance 2.3:1200C,5  
electrical 2.3:1200C,7;2.3:1230B,1,2;  
2.3:1230C,6,11,12,14;2.3:1270,3,14;  
2.3:1530A,10;2.3:1600A,9,10,11;2.3:  
1600C,9;2.3:1600D;2.3:1630C,3,4,5,  
8;2.3:1670,1,8,16;2.3:2300,40;2.9:  
P500,18  
electronic 2.3:1500,12,16;2.3:1530A,2  
handbooks 2.3:1000C,5;2.3:1200A,13;  
2.3:1300C,6;2.3:1500,16;2.3:3500,1  
high frequencies 2.3:1770C,4  
high temperatures 2.3:2800A,3  
hydraulic 2.3:3000D,2  
industrial 2.9:P100C,1,6  
instruments 2.3:1200A,7  
magnetic 2.3:1200C,7  
mechanical 2.3:1200A,3;2.3:3500,6  
microwave 2.3:1700A,5  
particle size 2.3:3200C,8  
physical 2.3:3200A,S4  
physicochemical 2.3:3200A,19  
piezoelectric 2.3:1270,15;2.3:1670,17  
precision 2.3:1200B,1;2.3:3500,11  
radio 2.3:1700C,4,5;2.3:1730D,4  
remote reading 2.3:1330C,S
- Mechanics 2.1:A100,8;2.3:2900D,2;  
2.3:3300,3;2.9:P400,2,11;2.9:P450A,  
1,2,3,4;2.9:P450C,1,3,4,5,7,8;  
2.9:P450D,5,7;2.9:P1200C,6;2.9:  
P1400,10  
actuating devices 2.3:2700,3  
applied 2.3:2900A,4,14;2.3:2900C,5;  
2.3:2900D,4;2.9:P400,2,4;2.9:  
P450B,1;2.9:P450C,2,8;2.9:P450D,  
2,4,8,9;2.9:P1200A,8;2.9:P1200D,1  
reviews 2.1:A200,6  
bibliographies 2.2:B400D,4  
celestial 2.3:1800,17  
fluids 2.3:2900A,16;2.3:2900C,8,17,S;  
2.3:3000A,14;2.9:P450B,2  
gyroscopic 2.3:2900B,4  
high speed 2.9:P450D,6  
industrial 2.9:P450C2  
nonlinear 2.3:2900C,18  
precision 2.3:2900C,11,13;2.9:P100B,  
4a;2.9:P100C,10;2.9:P450D,8;2.9:  
P1400,14

#### 4. Subject Index (Cont.)

##### Mechanics (Cont.)

quantum 2.3:2900C,3  
statistical 2.3:2900B,5  
theories 2.3:2900C,7,15  
vibration 2.3:3100,4

Mechanisms 2.3:1230A,6;2.3:2900A,1,3,8,  
15;2.3:2900C,4,12

Mechanization 2.9:P250D,8

##### Medicine

abstracts 2.1:A100,2,3  
bibliographies 2.2:B400D,3  
information services 2.6:G100,7  
instrumentation 2.3:1100,3;2.3:3400C,  
1;2.3:3400D,1,3,6,8  
physics 2.3:3400A,3  
temperature control 2.3:2800A,6  
ultrasonics 2.3:3400B,2

##### Metadyne

control systems 2.3:1100,7

Metallography 2.3:3300,1,2,3;2.9:  
P1200C,7

Metallurgy 2.1:A100,11;2.3:3300,9

Metals 2.3:2800A,8;2.3:3300,2,3,4,7,12;  
2.3:3600,S;2.9:P1200A,4

abstracts 2.1:A700,3,4,7  
electron microscopy 2.3:2170,14  
handbooks 2.3:1000A,11,23  
photoemission 2.3:2100C,2  
superconducting 2.3:2800A,11,14  
testing 2.3:3300,6,10;2.3:3600,2a;  
2.3:3700,1

vacuum apparatus 2.3:2500C,9

Meteorology 2.3:1000A,5;2.3:2100A,1;  
2.3:3000B,2;2.3:3400A,2;2.9:P1000C,  
4;2.9:P1000D,5;2.9:P1050,2,8,9,10,  
11,15,16,17,19

abstracts 2.1:A400,4  
bibliographies 2.2:B400D,1,5  
handbooks 2.3:2000,8  
instruments 2.3:1270,12;2.3:2000,6;  
2.3:2100A,2

satellites 2.3:2000,5,9

weather forecasting 2.3:2000,2

3; Metrology 2.1:A100,8;2.3:3500,3,13;  
2.9:P100C,6;2.9:P1400,3,14;2.9:  
P1500,1,2,3,8,9,10,11,12;2.9:  
P1550,13

catalogs 2.5:D100C,3,4  
engineering 2.3:1230C,15;2.3:3500,14  
handbooks 2.3:3500,15  
instruments 2.3:1200C,2,3

##### Microbalance

vacuum 2.3:2500A,6

Microfilms 2.4:D,1

Micromeritics 2.3:2900B,1

Microscopy 2.9:P830A,6;2.9:P830B,3;  
2.9:P830C,4,5,8,9

analytical 2.3:3200C,6

chemical

handbooks 2.3:3200A,22

encyclopedias 2.3:2170,9

techniques 2.3:2170,8,11,21;  
2.3:2200,3

x-ray 2.3:2170,7,17

Microscopy. See also Electron  
microscopy.

Microwaves 2.3:1500,18;2.3:1770D,S;

2.9:P530,4;2.9:P700,14;2.9:P770,1,  
7,11

antennas 2.3:1730D,2

applications 2.3:1700A,8,11

circuitry 2.3:1700A,10;2.3:1700B,1;  
2.3:2300,9

crossed-field

components 2.3:1730A,16

ferrites 2.3:1730A,4,18,21;2.3:  
1770D,1,4

handbooks 2.5:D100A,17

lenses 2.3:1730B,4

measurements 2.3:1700A,5;2.3:1770A,9;  
2.3:1770C,7

handbooks 2.3:1000A,S;2.3:1770A,11

physics 2.3:1700B,2

solid-state 2.3:1770A,S

spectroscopy 2.3:1770B;2.3:1770C,1;  
2.3:2130,1,9

theories 2.3:1700A,1;2.3:1730A,11

triodes 2.3:1730D,5

tubes 2.3:1700C,6;2.3:1730A,5;  
2.3:1730C,2

##### Military systems

design 2.9:P130,8

Mineralogical Society 2.3:2100B,2

##### Minerals

x-ray analysis 2.3:2100B,2

Miniaturization 2.3:1570,S;2.9:P600A,13

Mining engineering 2.3:P1200A,4

Missiles 2.3:1830A,4,13,17,20;2.9:  
P300A,1;2.9:P300C,5

aerodynamics 2.3:1830A,15

bibliographies 2.2:B100,12

catalogs 2.5:D100A,5



#### 4. Subject Index (Cont.)

##### Missiles (Cont.)

guidance 2.3:1800,17;2.3:1830A,  
2,7,18

handbooks 2.3:1800,17

range testing 2.3:1800,17

Missiles. See also Rockets.

##### Moire fringes

metrology 2.3:3500,3

##### Molecules

physics 2.3:1900,3;2.3:2130,8;  
2.3:3200C,10

structure 2.3:2170,10;2.3:2600,17

##### Moon

exploration 2.9:P300A,7

Motion pictures 2.3:2200,10

Motors 2.3:1330A,3,6;2.3:1370A,10;  
2.3:2900C,7

Muscles. See Myography.

##### Myography

electric 2.3:3400A,9,21;2.3:3400B,3

##### National conferences

applied mechanics 2.3:2900A,4;  
2.3:2900D,4

bioelectronics 2.3:3400D,5

communication satellites 2.3:1730B,2;  
2.3:1830B,2

computers 2.3:1400A,3;2.3:1430A,7

control systems 2.3:1300D,3

cryogenics 2.9:P800,5

electromagnetic radiation 2.3:1700A,6

electronics 2.3:1500,6,21;2.3:1530B,2;  
2.9:P600A,2,12

exhibits 2.5:D100A,18

food analysis 2.3:3200A,20

fluid dynamics 2.3:2900A,11,13

frequency responses 2.3:1770A,7

high pressures 2.3:2500A,2

high-speed testing 2.3:3600,11

high temperatures 2.3:2800A,17

hydrodynamics 2.3:2900A,5

hypersonics 2.3:1800,12;2.3:3000A,10;  
2.3:3000B,1

information theory 2.3:1400A,9

instrumentation 2.3:1200A,11

machine translation 2.3:1400A,5

mass spectrometry 2.3:2130,10,13;  
2.3:3200A,5

microwaves 2.3:1700B,1;2.9:P700,14

missiles 2.3:1830A,4

##### National conferences (Cont.)

nuclear instrumentation 2.3:2400A,6;  
2.3:2400B,3

oceanography 2.3:1270,17,20

optical instruments 2.3:2100B,5

photoconductivity 2.3:1670,19

process control 2.3:1300C,12

pulp and paper instruments  
2.3:1270,5

self-organization 2.3:1400A,10

spaceflight 2.3:1830A,1;2.3:1830B,1

spectroscopy 2.3:2130,15,19

strain gages 2.3:1230A,10

telemetry 2.9:P750,7;2.9:P300A,11

temperatures 2.3:2800A,6

testing materials 2.3:3600,12

vacuum 2.9:P1200A,9

weights and measures 2.9:P1500,12

x-ray analysis 2.9:P1330,6

Navigation 2.1:A100,8;2.3:1800,13;2.3:  
1830A,5,1,2;2.3:2300,2;2.9:P300A,2,  
7,10,15,16;2.9:P300C,4,5,6

astronautics 2.9:P300A,16

bibliographies 2.2:B300,3

inertial 2.3:1800,11,17;2.3:1830C

marine 2.3:1900,2

physics 2.3:1830A,4

Navigation. See also Avigation.

##### Networks

engineering 2.3:1600C,5;2.3:1630D,1;  
2.3:1670,9;2.3:1700A,12;2.3:1730A,  
12

linear 2.3:1600A,3;2.3:1700C,3

theories 2.9:P500,17

Neutrons 2.3:2400A,3;2.3:2400C,4;  
2.9:P900B,5

##### Nitrogen

thermodynamic properties 2.3:3000A,1

##### Noise

communication 2.3:1770A,1

control 2.3:2600,8;2.9:P870,2,8

electrical 2.3:1530A,7;2.3:1700A,4;  
2.3:1770A,6

Nondestructive testing. See Testing.

Nuclear energy 2.3:2400A,2;2.9:P530,4;  
2.9:P900A,2,5,8,10;2.9:P900B,1,3;

2.9:P900C,1,2,3,6,7,9,12,14,15,16;  
2.9:P900D,1,2,3,4,5,6,7

abstracts 2.1:A400,4,8;2.1:A600,3,15

applications 2.3:2400A,11;2.3:2400C,  
7;2.3:2400D,1;2.9:P900A,9;2.9:  
P900C,8,10,11



#### 4. Subject Index (Cont.)

##### Nuclear energy (Cont.)

- bibliographies 2.2:B400C,2
- catalogs 2.5:D100A,19
- chemistry 2.3:1400A,3;2.9:P900A,9
- conferences 2.3:2400A,6;2.3:2400C,1
- counters 2.3:1500,18;2.3:2400A,5
- encyclopedias 2.3:2400B,1
- experimental 2.3:2400A,4
- fuels 2.9:P900A,9
- information services 2.6:G100,7
- instrumentation 2.3:2300,32;2.3:2400A,8;2.3:2400B,2,3;2.9:P900B,4
- physics 2.3:1900,3;2.3:2400A,S;2.3:2400C,4,6;2.9:P900A,9
- reactors 2.3:1000A,25;2.3:1400A,10,11;2.3:2400A,9,12;2.9:P900A,6,8,9,11;2.9:P900B,4
- safety 2.9:P900A,1

Nuclear energy. See also Atomic energy.

##### Oceanography 2.9:P1050,6,13

- bibliographies 2.2:B400D,5
- instruments 2.3:1270,17,20

##### Operations research 2.3:1400A,10;2.3:1800,17;2.9:P200,5

##### Optics 2.3:2100C,3,11;2.9:P830A,1;2.9:P830B,1;2.9:P830C,2,7,17;2.9:P830D,1;2.9:P1200C,6;2.9:P1400,14

- applications 2.3:2100A,S1;2.3:2100B,1;2.3:2100C,7,19;2.9:P830A,9;2.9:P830B,5;2.9:P830C,13,16

##### electron 2.3:2170,3,4,12

- experimental 2.3:1200C,1;2.3:1900,3

- instrumental 2.3:2100B,8;2.3:2100C,5,6,9,16;2.3:3400C,1;2.9:P100C,5;2.9:P450D,10;2.9:P830C,14

- national conferences 2.3:2100B,5;2.3:2130,15

##### neutron 2.3:2400A,3

- principles 2.3:1900,6;2.3:2100B,4

- systems 2.3:1200C,6

- thin films 2.3:2100A,5

##### Oscillations

- nonlinear 2.3:3100,12

##### Oscillators 2.3:1530A,3;2.3:1530C,1,2,13;2.3:1630A,12

##### Oscillography 2.3:1230A,7;2.3:1530C,9

##### Oscilloscopes 2.3:1530A,8,15,17,20;2.3:1530C,7;2.3:1530D,1;2.3:1570,3

##### Oscilloscopes (Cont.)

- applications 2.3:1530B,5,6;2.3:1530C,5

##### Oxygen

- thermodynamic properties 2.3:3000A,1

##### Paint testing

- handbooks 2.3:3600,2

##### Paper

- testing 2.3:1270,5;2.3:3600,2a

##### Paramagnetism 2.9:P900B,6

##### Particle accelerators 2.3:2400A,1

##### Particle size 2.3:1270,13;2.3:1900A,S1;2.3:2900B,1

- measurements 2.3:1900A,S2;2.3:3200C,8
- subatomic 2.3:2400A,S

##### Patents

- abridgements 2.8:Pa100,2,8,10,11,12,13,16,22

- abstracts 2.8:Pa200,3;2.8:Pa300,5,6,8,10,12,13,14;2.8:Pa400,2

- chemical 2.8:Pa100,3;2.8:Pa300,2,5;2.8:Pa400,2

- indexes 2.8:Pa300,7

- classifications 2.8:Pa200,1,2,4,5,6,9,11

- electrical 2.8:Pa100,3;2.8:Pa300,2;2.8:Pa400,2

##### electronics

- indexes 2.8:Pa300,7

- gazettes 2.8:Pa100,1,4,5,6,7,9,14,15,17,18,19,21,23;2.8:Pa200,7

- guides 2.8:Pa300,9

- indexes 2.8:Pa200,8,S;2.8:Pa300,1,2,3,15;2.8:Pa400,1

- laws 2.8:Pa300,11

- mechanical 2.8:Pa100,3;2.8:Pa300,2;2.8:Pa400,2

- periodicals 2.8:Pa200,10

- translations 2.8:Pa100,20;2.8:Pa200,4;2.8:Pa300,5,13;2.8:Pa400,1

- world systems 2.8:Pa300,4

##### Periodicals

- source lists 2.7:I100,4,9,10;2.7:I300,7,8

##### Petroleum

- prospecting 2.3:2000,3

- technology 2.3:3200A,13;2.9:P1200A,4

##### Pharmacy

- polarography 2.3:3400D,3

#### 4. Subject Index (Cont.)

##### pH controls

industrial 2.3:3200A,4

Phosphorescence 2.3:2100A,14

Photochemistry 2.9:P830C,6

Photoconductivity 2.3:1670,19;  
2.3:2100C,2

Photocopying 2.3:2200,10

Photoelasticity 2.9:P830B,10

##### Photoelectric cells

applications 2.3:1630C,2;2.3:1670,2,  
13,14;2.3:2100B,6

Photoelectricity 2.3:1670,13;  
2.9:P830B,9

##### Photoemission

metals 2.3:2100C,2

Photogrammetry 2.3:2200,9,10,12;2.9:  
P100C,4;2.9:P830A,2

bibliographies 2.2:B100,10

handbooks 2.3:2200,8

Photography 2.3:2200,2;2.9:P830B,8;  
2.9:P830C,3,6

abstracts 2.1:A700,6,9,12

applications 2.3:2200,1,3,5,10,11;  
2.9:P830A,12;2.9:P830B,7;  
2.9:P830C,15

handbooks 2.3:2200,4

instruments 2.3:2200,6;2.9:P100A,3;  
2.9:P100C,4

motion pictures 2.9:P830A,10

x-rays 2.3:2300,43

Photography. See also Chronophotography.

Photometry 2.3:2100B,3;2.3:2100C,1,6;  
2.3:3300,11

analytical 2.3:2100A,7;2.3:2100C,8,  
18;2.3:3200A,11

Photometry. See also Spectrophotometry.

Photophysics 2.9:P830C,6

Photosensitors 2.3:2100B,6

##### Physical properties

tables 2.3:1000C,3

Physics 2.1:A100,11;2.9:P1000D,8;2.9:  
P1100A,1,2,3,4,5;2.9:P1100B,1,3;  
2.9:P1100C,1,2,3,4,6,7,8,9,10,11,  
12;2.9:P1100D,4,6,7;2.9:P1150C,1;  
2.9:P1200D,1,5;2.9:P1370,8;2.9:  
P1600,3,7,8

abstracts 2.1:A100,1,9;2.1:A400,2,7;  
2.9:P1150A,7

applied 2.3:1230D,1;2.3:1900,4;2.9:  
P600A,7;2.9:P750,1;2.9:P1150A,2,4,  
6;2.9:P1150B,1,2;2.9:P1150C,2,5,6;

##### Physics (Cont.)

applied (Cont.) 2.9:P1150D,1,2,4,5;  
2.9:P1200C,6;2.9:P1200D,2

atomic 2.9:P900A,2;2.9:P900C,5,9,13;  
2.9:P1000C,9

bibliographies 2.2:B400A,9,10

biological 2.1:A200,8;2.9:P1150C,4

dictionaries 2.3:1100,8

experimental 2.3:1100,10;2.3:1900,3;  
2.3:2800B,5;2.3:3000A,18;2.9:P830A,  
13;2.9:P900B,2;2.9:P1100A,2;2.9:  
P1100B,5;2.9:P1150A,1;2.9:P1150C,3;  
2.9:P1150D,3

handbooks 2.3:1000A,3,6,27;2.3:  
1000B,1;2.3:1000C,4,9

information services 2.6:G100,7

literature guides 2.6:G200,3,4

mathematical 2.3:1400C,9;2.3:1900,1;  
2.3:2900A,9;2.9:P400,3,7,12;2.9:  
P1100B,2;2.9:P1600,15

medical 2.1:A200,8;2.3:3400A,3

nuclear 2.3:1900,3;2.3:2400A,4;2.3:  
3400A,12;2.9:P900A,2,12;2.9:P900C,  
5,9

plasma 2.9:P900A,8,9,12;2.9:P900C,  
4,11

solid state 2.3:1600A,1;2.3:1900,3;  
2.9:P450A,4;2.9:P1100B,3;2.9:P1150A,  
3;2.9:P1150C,3,7

Soviet 2.9:P830D,2;2.9:P870,7;2.9:  
P1100D,1,2,3,5;2.9:P1150D,5;  
2.9:P1600,5

tables 2.3:1000A,5;2.3:1000C,10

theoretical 2.3:1100,2;2.6:G200,3;  
2.9:P400,3,7,12;2.9:P1100A,2;  
2.9:P1100B,2

Physics. See also Astrophysics;  
Biophysics; Geophysics;  
Photophysics.

##### Piezoelectricity

applications 2.3:1670,10

instruments 2.3:1270,15;2.3:1670,17;  
2.3:1730A,9

##### Piloting

marine 2.3:1900,2

##### Pipes

fluid flow 2.3:3000A,15

Plasmas 2.9:P450A,3;2.9:P900A,8,9,12;  
2.9:P900C,4,11

wave propagation 2.3:1700D

Plastics 2.3:3600,1,3,7;2.9:P1200A,12

#### 4. Subject Index (Cont.)

- Plethysmography 2.3:3400A,4;2.3:3400D,4
- Polarography 2.3:3200A,23,S3;2.3:3200C,7;2.3:3300,11;2.3:3400D,3;2.9:P1330,3  
bibliographies 2.2:B100,9,15
- Polymers  
handbooks 2.3:1000B,2
- Power  
abstracts 2.1:A600,3;2.9:P500,13  
engineering 2.3:1000A,26;2.3:1370C,6;2.3:1600A,4;2.3:1600C,3,5;2.3:1830A,4;2.9:P500,6;2.9:P530,2,11;2.9:P1200A,8  
instrumentation 2.3:1270,6;2.3:1670,4;2.3:1700A,12;2.9:P130,4  
nuclear 2.9:P800,6;2.9:P900A,8,11;2.9:P900B,4;2.9:P900C,8,10  
rockets 2.3:1830A,13;2.9:P300A,7;2.9:P800,6  
transmission 2.3:1530C,13;2.3:1600C,3,4;2.3:1630D;2.3:1670,5,9;2.3:1730A,12;2.3:1730C,11;2.9:P500,11;2.9:P530,7,11;2.9:P770,8
- Power sources 2.3:1500,14
- Pressure  
bibliographies 2.2:B100,18  
high 2.3:2500A,2,3,9,11,12,14;2.3:2500B,2;2.3:2800C,3  
instruments 2.3:1200A,9;2.3:1300C,9;2.3:2500A,16;2.3:3000B,3;2.3:3500,10,S2
- Prisms 2.3:1200B,4
- Probability theory 2.9:P450C,9
- Process control 2.3:1270,1;2.3:1300C,12;2.3:1370A,3,6,7;2.3:2800D,10;2.9:P100C,1;2.9:P200,6;2.9:P1300,5;2.9:P1500,6  
chemical 2.3:3200A,13  
conferences 2.3:1370A,8  
instruments 2.3:1230A,9;2.3:1700C,3  
machinery 2.3:3200A,9
- Process control. See also Automatic control, Automation, Controls.
- Processes  
handbooks 2.3:3600,6
- Production  
data processing 2.3:1300C,11
- Propellants  
solid 2.9:P300A,7
- Propulsion 2.3:1830A,4  
missiles 2.3:1800,17;2.9:P300A,7
- Prospecting  
geophysical 2.3:1900,11
- Psychology  
instruments 2.3:3400A,19
- Pulse techniques 2.3:1730C,4,13;2.3:2300,5;2.3:2700,2
- Pumps 2.3:2900C,5
- Punched cards 2.3:1400A,11;2.3:1400C,5
- Pyrometry  
radiation 2.3:2800A,13
- Quality control  
handbooks 2.3:1000A,10;2.9:P1400,6,13
- Quality control. See also Controls, Process control.
- Quantum theory  
semiconductors 2.3:1550D,5
- Radar 2.3:1500,18;2.3:1730A,19;2.3:1730C,16;2.3:1800,17;2.9:P770,9  
applications 2.3:1730A,8,20;2.3:1730C,10;2.3:2300,1  
bibliographies 2.2:B300,3  
handbooks 2.3:1730A,3
- Radargrammetry 2.3:1770A,10
- Radiant energy 2.3:1700A,3;2.3:2300,28
- Radiation 2.3:2100A,3;2.3:2300,35,S4,S6;2.9:P830A,4;2.9:P900A,3,4,7;2.9:P900B,4;2.9:P900C,13  
handbooks 2.3:1000C,4;2.3:2300,39  
hazards 2.3:2300,30  
therapy 2.9:P830C,12;2.9:P900D,3
- Radiation. See also Dosimetry.
- Radio 2.9:P530,4,7,11,14;2.9:P600C,10;2.9:P700,1,2,3,4,5,6,7,8,10,11,12,15;2.9:P730,1,2,4,5,6,8,10,11,12,13,14,16,17;2.9:P750,2,3,4;2.9:P770,1,2,4,7  
catalogs 2.5:D100A,13;2.5:D100B,5  
directional 2.3:1730D,7  
electronics 2.3:1500,18;2.3:1530D,S4;2.3:1700B,2;2.3:1700C,10;2.3:1770D,5;2.9:P600B,2;2.9:P600C,7,8,10;2.9:P730,3,5,7,9,15;2.9:P750,1,8  
equipment 2.3:1530A,3;2.3:1700C,11;2.3:1730A,9;2.3:1770C,1,5;2.3:1770D,3;2.9:P530,4



#### 4. Subject Index (Cont.)

##### Radio (Cont.)

frequencies 2.3:1530C,11;2.3:1700C,  
3;2.3:1770A,4;2.3:2300,29  
handbooks 2.3:1000C,S1;2.3:1700A,13;  
2.3:1700C,8,11;2.3:1770A,5  
measurements 2.3:1700C,4,5;2.3:1730C,  
7;2.3:1770B,1  
periodicals 2.9:P730,18  
propagation 2.3:1730C,12;2.3:1770C,  
2,6;2.3:1770D,2,3;2.9:P730,11;  
2.9:Pl600,3

Radio. See also Electromagnetic radiation, Telecommunications.

##### Radioactivity

instruments 2.3:2300,42;2.3:3200C,1

Radioactivity. See also Beta rays, Counters.

Radiochemistry 2.3:1400A,3

Radiocrystallography 2.3:2100C,12

Radiography 2.3:3400A,13;2.9:830B,2;  
2.9:Pl400,1

Radioisotopes 2.3:1200A,6;2.3:2300,  
31,32;2.3:2400C,5;2.3:3300,9

Radiology 2.3:3400A,12,18

Radiometry 2.3:2300,S5

Radium 2.9:Pl100C,12

Radomes 2.3:2300,26

Raman effect 2.3:2130,9;2.3:3300,11

##### Range testing

missiles 2.3:1800,17

Reactors. See Nuclear energy:Reactors.

Receivers 2.3:1550B,4

Rectifiers 2.3:1230C,4,6,12;2.3:1550C,  
3;2.3:1600C,8;2.3:1630C,6;2.3:  
2300,15;2.9:P770,11

##### Reentry

vehicle design 2.3:1830A,4

Refractive index 2.3:2100B,7;2.3:2100D,1

Refrigeration 2.9:Pl200A,11

bibliographies 2.2:B400C,1

Relays 2.3:1330C,8;2.3:1500,14;2.3:  
1630A,7;2.3:1630C,5;2.3:1630D,1

Reliability 2.1:A300,11;2.3:1200A,10;  
2.3:1500,4,20;2.3:1530A,5,16;2.3:  
1550A,5;2.9:P530,4

##### Research

bibliographies 2.2:B100,22

biological 2.9:Pl30,6

industrial 2.9:Pl00B,6;2.9:Pl200D,3,6

medical 2.9:Pl30,2

statistical methods 2.3:1100,4

##### Resistance

bridges 2.3:1230B,7

Resistors 2.3:1500,14;2.3:1530A,9;2.3:  
1670,18

##### Resonance

in solids 2.9:P900B,6;2.9:Pl150A,3

Rheology 2.3:3000A,4,17,S;2.3:3000B,4;  
2.3:3000C,3;2.9:Pl150A,2;2.9:  
Pl330,4,7

abstracts 2.1:A400,9

Rockets 2.3:1830A,3,13,18;2.9:P300A,1,  
7;2.9:P300D,2

bibliographies 2.2:B100,12;2.2:B400A,  
2

Rockets. See also Missiles.

Rockwell tests 2.3:3600,10

##### Safety

radiation hazards 2.3:2300,30

Sanitation 2.9:P800,4

##### Satellites

artificial 2.3:1830A,17;2.3:1830D,2;  
2.3:2000,9;2.9:P300D,3

communications 2.3:1730B,2;2.3:1770C,  
6;2.3:1830B,2

##### Scales

applications 2.3:3700,2;2.9:Pl500,4

##### Scanners

radar 2.3:2300,26

##### Science

abstracts 2.1:A100,1,4,5,6,8,9;2.2:  
B100,23

bibliographies 2.2:B100,24;2.2:B400B,  
3

information services 2.6:G100,7

literature guides 2.6:G200,1

periodicals 2.9:Pl600,1,2,4,6,7,9,  
10,11,12,13,14,15,16,17

Soviet 2.6:G300,3;2.7:I300,1

Scintillation counters 2.3:1500,18;  
2.3:2300,S1

Scintillators 2.3:2400A,8

Seismology 2.3:2000,4,5,7;2.9:Pl050,  
1,7,12

abstracts 2.9:Pl050,4

bibliographies 2.2:B100,5,6

Selenium 2.3:1630C,2

Self-organizing. See Automation.



#### 4. Subject Index (Cont.)

Semiconductors 2.1:A400,1;2.3:1550A,7,8;2.3:1550B,6,7;2.3:1550C,6;2.3:1730D,1;2.9:P600A,4;2.9:P600C,1  
abstracts 2.1:A300,1  
circuitry 2.3:1530B,3;2.3:1530D,2;2.3:1550A,3;2.3:1730C,17  
conferences 2.3:1550A,5;2.3:1550C,2,4;2.3:1730C,3  
devices 2.3:1550A,1,2,5;2.3:1550B,2,3,11;2.3:1550C,3,4,5;2.3:1550D,4,5,1,3;2.3:1560B,1;2.9:P600A,10;2.9:P600D,2;2.9:P700,18;2.9:P770,6,11;2.9:P1150A,3  
handbooks 2.3:1000A,17;2.3:1550A,6,10  
physics 2.3:1550A,4;2.3:1550C,2;2.3:1550D,1,2,3,5,5,2;2.3:1560C,4  
Semiconductors. See also Ferrites, Transistors.  
Servomechanisms 2.3:1230A,4;2.3:1230C,5;2.3:1300A,14,15;2.3:1330A,5,7,11;2.3:1330C,4,9;2.3:1330D,3;2.3:2300,25  
handbooks 2.3:1300C,8  
Servomechanisms. See also Automatic control, Automation, Process control.  
Shells  
stresses 2.3:2900C,6;2.3:2900D,3  
Shock 2.3:3100,5,7,5  
bibliographies 2.2:B400A,6  
handbooks 2.3:3100,13  
Shock tubes 2.3:1800,15;2.3:2800B,5  
Signal noise 2.3:1500,18;2.3:2400A,5  
Signals 2.3:1430C,2;2.3:1500,18;2.3:1530A,3;2.3:1570,7;2.3:1770A,1;2.3:2300,24;2.3:3200A,12  
Silicon  
rectifiers 2.3:1630C,6  
Solar energy 2.3:2300,44;2.3:2800C,5;2.9:P1200A,2  
Solids  
physics 2.3:2500A,12;2.3:2900C,10  
Solid state 2.3:1600A,1;2.3:1900,3;2.9:P1100B,4;2.9:P1100D,2;2.9:P1150C,3,7  
abstracts 2.1:A400,1  
conferences 2.3:1730C,3  
devices 2.3:1550C,1;2.3:1630A,2;2.3:1770A,5;2.3:1900,7;2.9:P600A,6,10

Sonar  
principles 2.3:2600,20  
Sound 2.3:2600,2,13a,15,19;2.3:3400A,2;2.9:P870,8,11;2.9:P1150A,8  
Sound. See also Acoustics, Electroacoustics, Hypersonics, Ultrasonics  
Soviet Union  
space effort 2.2:B100,12  
Space  
bibliographies 2.2:B400A,3  
information sources 2.6:G200,5  
research 2.2:B100,5,3;2.3:1800,17,5,3;2.3:1830A,14,22,5,1;2.9:P300A,5  
technology 2.2:B100,12;2.3:1830A,1,4,23;2.9:P300A,7,8;2.9:P530,4  
Space. See also Aerospace, Astronautics, Navigation.  
Spaceflight. See Astronautics.  
Specifications 2.3:3700,2,3,5;2.9:P1550,17  
Spectrometry 2.3:2130,10,11,13,16;2.3:2300,34;2.3:3200A,5;2.3:3300,11  
Spectrophotometry  
trace elements 2.3:3200C,7  
Spectroscopy 2.3:2130,5,6,19;2.9:P830A,5,7,8,11;2.9:P830B,9;2.9:P830D,1;2.9:P1150A,3;2.9:P1300,2;2.9:P1330,12  
abstracts 2.1:A500,1  
analytical 2.3:1770B,1;2.3:2130,1,2,4,8,9,12,14,18;2.3:2300,36;2.3:2400A,2;2.3:2400C,4;2.3:3200A,14;2.3:3200C,2,10;2.9:P1330,8  
bibliographies 2.2:B100,1,4,7,14,16  
conferences 2.3:1770C,1;2.3:2130,7,15  
electronics 2.3:1570,6;2.3:1770C,1  
Stability  
testing 2.3:1300C,2  
Standards 2.9:P1500,5,8;2.9:P1550,1,2,3,4,5,6,7,8,9,10,11,12,14,15,16,17,18  
DIN 2.3:3700,4  
France 2.3:P1500,26  
radiation hazards 2.3:2300,30  
Statistics  
engineering 2.3:1100,4;2.3:1400C,8;2.9:P200,6,9  
Steam  
thermodynamic properties 2.3:3000A,1

#### 4. Subject Index (Cont.)

Strain gages 2.1:A200,5;2.3:1230A,5,  
8,10,11;2.3:1230B,4;2.3:1230C,1,  
7;2.3:1230D,2;2.3:2100C,9,10;2.3:  
3600,4

Stress analysis 2.3:1000A,16;2.3:  
3600,4;2.9:P1400,15

#### Structure

chemical 2.3:2100D;2.3:3300,11;  
2.9:P830A,14

Superconductivity 2.3:1670,S;  
2.3:2800A,11,14

Superfluids 2.3:3000A,18

#### Surfaces

physics 2.3:1900,7

Surveying 2.3:1270,9,10;2.3:1570,8;  
2.3:1900,8;2.9:P100C,4

Switches 2.3:1500,14;2.3:1630B,2

#### Symbols

communications 2.3:1770A,1

#### Symposiums

analysis instrumentation 2.9:  
P1330,14

electrical measurements 2.9:P500,18

electron microscopy 2.3:2170,5

hardness testing 2.3:3300,5

miniaturization 2.3:1550A,9

network theories 2.9:P500,17

neutron dosimetry 2.9:P900B,5

nondestructive testing 2.9:P1400,16

photoelasticity 2.9:P830B,10

space science 2.3:1800,S3

ultrafine particles 2.3:1900A,S1

vacuum microbalance 2.3:2500A,6

Symposiums. See also Conferences,  
National conferences.

#### Systems

linear

analysis 2.3:1570,9

#### Technical data

centers 2.6:G100,3

#### Technical information

searching 2.6:G100,6

#### Technical literature

bibliographies 2.6:G300,3;2.7:J100,  
1,2,5,8;2.7:I300,1,6

guides 2.6:G100,1,2,5,6,11,S

source lists 2.6:G100,8,9,10;2.6:G300,  
1,2,4,5,6,7;2.7:I100,3;2.7:I300,2,  
4,11

#### Technology

information services 2.6:G100,7

Telecommunications 2.1:A100,11;2.3:  
1770D,S;2.9:P530,7,14;2.9:P700,  
1,2,3,4,5,6,7,8,10,11,12,15;2.9:  
P730,5,6,8,12,17,18,22;2.9:P750,  
1,5;2.9:P770,3,10

abstracts 2.1:A300,5,10,14,15

bibliographies 2.1:A100,12;2.1:A300,S;  
2.2:B300,2,8,9;2.7:I200,2

catalogs 2.5:D100A,17

conferences 2.3:1730C,3

engineering 2.3:1700C,7;2.3:1730A,6;  
2.3:1730C,9,11;2.3:1730D,3,4;2.3:  
1770C,8;2.9:P750,2,6;2.9:P770,5

handbooks 2.3:1000A,24;2.3:1000B,3;  
2.3:1000C,6;2.3:1700C,2

satellites 2.3:1730B,2;2.3:1730C,8;  
2.3:1770C,6;2.3:1830B,2

Telecommunications. See also Radio,  
Television.

#### Telemetry

applications 2.3:1200A,9;2.3:1330C,5;  
2.3:1730A,14;2.3:1830A,9,11

bibliographies 2.2:B100,17

conferences 2.9:P300A,11;2.9:P750,7

handbooks 2.3:1830A,8

Teleperm-Telepneu 2.3:1370A,3

Telephony 2.9:P770,2

Telescopes 2.3:2200,13

Television 2.3:1730C,S;2.3:1770A,3;2.9:  
P600C,2;2.9:P750,4;2.9:P830A,10;  
2.9:P830B,6;2.9:P830C,10

devices 2.3:1730C,6;2.3:1770C,5,14;  
2.3:1770D,6

handbooks 2.3:1700C,11

Television. See also Telecommuni-  
cations.

#### Temperature

biological effects 2.9:P800,8

control 2.3:1270,7;2.3:1300C,9;  
2.3:2800A,6,12;2.3:2800B,3;  
2.3:2800C,8

high 2.3:2800A,3,7,17;2.3:2800B,4;  
2.3:2800C,3;2.9:P800,6

measurements 2.2:B100,3,13;2.3:  
1200A,9;2.3:2800A,5,6;2.3:2800C,  
2,4,9;2.3:2800D,10;2.3:3500,10;  
2.3:3600,4

Temperature. See also Cryoscopies,  
Pyrometry, Thermometry.

#### 4. Subject Index (Cont.)

- Tensammetry 2.3:3200A,S3  
Terminals 2.3:1500,14  
Testing  
    electronic 2.3:1530A,2  
    nondestructive 2.3:2600,21;2.3:  
        3600,13,14,16;2.9:P530,2;2.9:  
        P1400,1,16  
Testing materials 2.3:1270,11;2.3:  
    2900A,7;2.3:3300,10;2.3:3600,2a,  
    4,11,15;2.9:P1200A,10,12;2.9:  
    P1400,2,4,5,6,7,8,9,10,11,15;  
    2.9:P1500,6,7  
    abstracts 2.1:A600,5  
    catalogs 2.5:D100C,3  
    handbooks 2.3:3600,8,14  
Tetrodes 2.3:1530C,8  
Textiles  
    research 2.1:A700,1,14;2.9:P250C,  
        1;2.9:P1200A,10  
    testing 2.3:1270,11;2.3:3600,2a  
Thermochemistry 2.3:2800A,16,18  
Thermocouples 2.3:1550D,4  
Thermodynamics 2.3:1800,7;2.3:2800A,  
    2,7;2.3:2800C,3;2.3:2900C,5;  
    2.3:3000A,5;2.7:I200,5;2.9:  
    P800,6  
Thermoelectricity 2.3:1550D,4;2.3:  
    1630A,8;2.3:2800A,1  
Thermometry 2.3:2800A,6;2.3:2800B,3;  
    2.3:2800C,8  
Thermometry. See also Pyrometry,  
    Temperatures.  
Thermonucleonics 2.9:P900A,9,12  
Thermostats 2.2:B100,11;2.3:1270,7;  
    2.3:2800D,10  
Thyratrons 2.3:1530C,3  
Time. See also Chronometry.  
Time  
    testing materials 2.3:3600,4  
Titration  
    automatic 2.3:3200B,3  
Tolerances 2.3:1230C,3;2.3:3700,2  
Tool steels  
    standards 2.3:3300,8  
Torsion devices  
    designs 2.3:1230B,3  
Tracers  
    isotopic 2.3:2300,45;2.3:3200C,7  
Tracking  
    physics 2.3:1830A,4  
Transducers 2.3:1230A,3,5,7,8,16;2.3:  
    1600A,5;2.3:1630A,1;2.3:1730D,6  
    literature guides 2.6:G200,8  
Transformers 2.3:1230C,4;2.3:1500,1,14  
Transistors 2.3:1560A,S1;2.3:1560B,1;  
    2.3:1560C,3,4;2.3:1560D,1;2.9:P700,  
    18;2.9:P770,6,11  
    applications 2.3:1530A,12;2.3:1550B,4;  
    2.3:1560A,1,4,11,13,14,16,17,S2;  
    2.3:1560C,1,6,8,9,10  
    bibliographies 2.2:B300,7  
    catalogs 2.3:1560D,2  
    devices 2.3:1430A,13;2.3:1550B,5;  
    2.3:1560A,3,5,8,12,18  
    handbooks 2.3:1550A,6;2.3:1560A,9,10  
    physics 2.3:1550C,3;2.3:1560A,2,6,7,  
    15;2.3:1560C,2,5,7;2.3:1730C,1  
Translating 2.6:G200,1  
Translation. See Machine translation.  
Translations  
    lists 2.7:I300,3,10  
Triodes 2.3:1530C,8;2.3:1730D,5;  
    2.3:2300,7  
Troposphere  
    radio propagation 2.3:1770C,6  
Turbines 2.2:B400A,2;2.3:1800,7;  
    2.3:2900C,5  
Turbomachines  
    flow 2.3:1800,3  
Turbulence  
    aerodynamics 2.3:1800,7  
Ultrasonics 2.3:1230D,1;2.3:2600,2,3,  
    4,6,10,16;2.3:2600,5,13,17;2.9:  
    P530,4;2.9:P870,4,6  
    bibliographies 2.9:P870,3  
    medicine 2.3:3400B,2  
    nondestructive testing 2.3:2600,21;  
    2.3:3600,16,S  
Ultrasonics. See also Sound, Hyper-  
    sonics.  
Ultraviolet light 2.3:2100C,6;2.3:  
    2130,9;2.3:3400A,2  
Ultraviolet. See also Light.  
Underwater sound 2.3:2600,13a  
Units  
    electrical 2.3:1600A,8  
    magnetic 2.3:1600A,8  
    metrology 2.3:3500,13  
    physical quantities 2.3:3500,12



#### 4. Subject Index (Cont.)

Vacuum 2.3:2500A,6,S;2.9:P1200A,6,9,S  
  engineering 2.3:2400A,2;2.3:2500A,  
    1,8,13;2.3:2500B,1,3,4,5;2.3:2500C,  
    3,4,5,6,7,10;2.9:P1200A,9;2.9:  
    P1200C,9,11  
  handbooks 2.3:2500A,13;2.3:2500C,  
    1,2,9  
  measurements 2.3:2500A,4,7,15;  
    2.3:2500C,8  
Vacuum tubes 2.3:1400A,8;2.3:1530A,1,  
  12,19;2.3:1530B,7;2.3:1530C,2,6,8;  
  2.3:1700C,6,11;2.3:1730A,5;2.3:  
  1730C,13;2.3:1730D,5;2.3:2300,18  
  catalogs 2.3:1560D,2  
  handbooks 2.3:1530A,18  
Varactor 2.3:1530A,6  
Vehicles  
  space 2.9:P530,4  
Velocity  
  bibliographies 2.2:B100,20  
Ventilating  
  catalogs 2.5:D100A,4  
  handbooks 2.3:1000A,19  
Vibrations 2.3:2130,8;2.3:3100,1,4,5,  
  6,9,10,11,S;2.3:3400A,2;2.9:  
  P450D,1;2.9:P870,11;2.9:P1150A,8  
  applications 2.3:3100,2,3,8  
  bibliographies 2.2:B400A,6  
  handbooks 2.3:3100,13  
Vib-rotors  
  molecular 2.3:2130,12  
Vickers  
  tests 2.3:3600,10  
Viscosity 2.3:3000A,S  
Voltmeters 2.3:1530A,1

Wakes 2.3:3000A,8  
Watches  
  handbooks 2.3:2700,4  
Wave filters  
  electromechanical 2.3:1630A,1  
Waveforms 2.3:2300,19  
Waveguides 2.3:1730A,6,13,22  
  handbooks 2.3:2300,10  
Waves  
  charges 2.3:1500,18  
  electrical 2.3:1670,12  
  electromagnetic 2.3:1500,18  
  laminar flow 2.3:3000D,3  
  propagation 2.2:B300,2,9;2.3:  
    1770D,2,3

Waves (Cont.)  
  radio 2.3:2300,13  
Weather  
  forecasting 2.3:2000,2  
Weather Bureau 2.9:1000A,3  
Weighing 2.9:P1500,4  
Weight  
  controls 2.3:3500,8  
Weights and measures 2.3:3500,2,7,8,9,  
  S1;2.9:P100B,8;2.9:P1400,3;2.9:  
  P1500,2,11,12  
Wheatstone bridge 2.3:1600C,10  
Wind tunnel  
  instrumentation 2.3:1800,6,12;2.3:  
    2600,13  
X-rays 2.3:2300,S2  
  analysis 2.3:2100B,12;2.3:3200C,S;  
    2.3:3300,11  
  applications 2.3:2170,7,10,17;2.3:  
    2300,41;2.3:3330,S;2.3:3600,13;  
    2.9:P1330,6  
  diffraction 2.3:2100B,9;2.3:2100C,12,  
    2.3:2130,17;2.3:2300,43,S3









